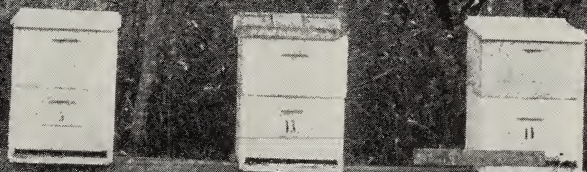


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OF
JULY 1916

Gleanings in Bee Culture



Special Bargains in Shipping-cases

With the bountiful crop of honey being gathered there will be need for shipping-cases in which to place the comb honey for market. During the past few years we have made several changes in the style of our cases, and have some stock of styles formerly made, but not now listed in our catalog. There are some people who prefer the older styles to the later ones, and there may be others who would use the older styles if bought at a low price, and prompt delivery were made. We have on hand the following stock which we offer, to close out and subject to previous sale, at the special prices here named:

- 8 crates of 50 each, 9½-inch, 2-row, at \$4.00 per crate.
- 20 crates of 50 each, 10-inch, 2-row, at \$4.00 per crate.
- 15 crates of 50 each, 6¼-in. 3-row, at \$4.00 per crate.
- 56 crates of 50 each, 12-lb. cases, at \$4.00 per crate.

All of the above have either 2 or 3 inch glass, and take 12 sections 4¼ x 4¼ x 1½ plain,

There are also for the same size section, packed 10 in a crate:

- 12 crates of 10 each, 9½-in. 2-row at 85 cts. per crate.
- 4 crates of 10 each, 6¼-inch 2-row at 85 cts. per crate.
- 4 crates of 10 each, 10-inch, 2-row, at 85 cts. per crate.

For the 4¼ x 1½ beeway section we have:

- 15 crates of 50 each, 15¼-inch 2-row, for 15 sections, at \$4.50 per crate.
- 9 crates of 10 each, 15¼-inch, 2-row, for 15 sections, at 95 cts. per crate.

- 15 crates of 50 each, 11¾-inch, 2-row, for 12 sections, at \$4.00 per crate.

- 8 crates of 10 each, 12-lb. safety cases with cartons, at \$1.20 per crate.

- 5 crates of 10 each, 8-inch, 3-row, for 12 sections, at 85 cts. per crate.

- 2 crates of 10 each, 12-inch, 4-row, for 24 sections, at \$1.80 per crate.

For 24 sections, 4¼ x 1½ plain:

- 1 crate of 25 each, 9½-inch, 4-row, at \$4.00 per crate.

- 2 crates of 10 each, 9½-inch, 4-row, at \$1.75 per crate.

- 8 crates of 10 each, 10-inch, 4-row, at \$1.75 per crate.

For 12 sections 4 x 5 x 1½:

- 33 crates of 50 each, 3-row cases, at \$4.00 per crate.

- 3 crates of 50 each, 3-row for 15 sections, at \$4.00 per crate.

For 12 sections, 3½ x 5 x 1½:

- 6 crates of 10 each, 3-row cases at 85 cts. per crate.

ADDITIONAL SHIPPING-CASES AT BRANCH OFFICES.

At Washington, D. C.

- 3 cases, 10 each, 12-lb. cases for 4¼ x 1½ sections, at 85 cts. each.
- 7 cases, 10 each, 12-lb. cases for 4¼ x 1½ sections, at 85 cts. each.
- 3 crates, 50 each, 12-lb. cases for 3½ x 5 x 1½-inch sections at \$4.00 per crate.

At Mechanic Falls, Me.

- 5 packages, 10 each, 12-lb. safety-cases for 4¼ x 1½ sections, including safety carton, at \$1.20 per crate.
- 2 crates, 10 each, 12-lb. cases for 4¼ x 1½ sections at 85 cts. per crate.
- 3 crates, 10 each, 12-lb. cases for 3½ x 5 x 1½ sections at 85 cts. per crate.
- 2 crates, 10 each, 12-lb. cases for 4 x 5 x 1½ sections at 85 cts. per crate.
- 2 crates of 10 each, 12-lb. safety cases for 4 x 5 x 1½ sections, including safety cartons, \$1.20 per crate.

We also offer the following glass jars, to close out at special prices, subject to previous sale.

At New York Branch.

- 4 bbls. of 7-oz. tumblers, 24 doz. to barrel, at \$5.00 per barrel.
- 11 gross of 2-lb. square jars with cork, 6 dozen to case at \$7.50 per gross, \$4.00 per case.
- 13 cases of 2 dozen each, ½-lb. square jars with cork, at 90 cts. per case.

At Philadelphia Branch.

- 1 gross ½-lb. square jars with cork, at \$3.25.
- 10 cases ¼-lb. square jars with cork, 75 cts. case of 2 dozen.
- 1 gross ½-lb. square jars with cork, at \$4.00.
- 8 cases ½-lb. square jars with cork, 90 cts. case of 2 dozen.
- 4 gross 1-lb. square jars with cork, \$5.00.
- 3 cases 1-lb. square jars with cork, \$1.10 case of 2 dozen.
- 5 gross 2-lb. square jars with cork, at \$7.50.
- 37 cases 1-lb. Simplex jars, 2 dozen per case, at \$1.30.

At New York Branch.

- 1 crate 50 2-row and 1 crate of 50 3-row 12-lb. cases for 4¼ x 1½ sections at \$4.00 per crate.
- 1 crate 50 15-lb. cases for 4x5x1½ sections, at \$4.00 per crate.

At Philadelphia Branch.

- 8 crates, 50 each, 12-lb. cases for 4¼ x 1½ sections at \$4.00 per crate.
- 10 crates of 10 each, same, at 85 cts. each.
- 13 crates, 50 each, 12-lb. cases for 4¼ x 1½ sections at \$4.00 per crate.
- 9 crates, 10 each, same, at 85 cts. per crate.
- 4 crates, 50 each, 24-lb. cases for 4¼ x 1½ sections at \$8.00 per crate.
- 4 crates, 10 each, same, at \$1.70 per crate.
- 4 crates, 50 each, 16-lb. cases for 4¼ x 1½ sections at \$4.50 per crate.
- 1 crate of 10 12-lb. cases for 4 x 5 x 1½, at 85 cts.
- 7 crates, 50 each, 12-lb. cases for 3½ x 5 x 1½ sections, at \$4.00 per crate.
- 5 crates, 10 each, same, at 85 cts. per crate.

At Mechanic Falls, Me.

- 5 gross ½-lb. square jars, with corks, at \$4.00 per gross.
- 29 cases of 2 dozen each, Simplex or Federal 1-lb. jars at \$1.10 per case.

At Washington, D. C.

- 1 bbl. 12 dozen 1-lb. No. 25 jars at \$5.00 per bbl.
- 3 bbl. 12 dozen 1-lb. Simplex jars at \$5.25 per bbl.
- 2 crates 12 dozen 1-lb. Simplex jars at \$5.00 per crate.
- 1 case 2 dozen 1-lb. Simplex jars at \$1.10 per case.

These are fine for exhibition purposes.

- 8 dozen ½-lb. Hershisser jars with nickel tops at 50 cts. a dozen.
- 11 doz. 1-lb. square Hershisser jars with nickel tops at 65 cts. a dozen.

THE A. I. ROOT COMPANY, Medina, Ohio

SHIPPING-CASES FOR COMB HONEY

Don't make the mistake of putting a fine lot of section honey in poor shipping-cases. It will lower the price to you and damage your future sales. "Falcon" cases are A No. 1, and will be a credit to any crop of honey. Prices are as follows:

Shipping-cases in Flat, without Glass

No. 1....holding 24 sections, $4\frac{1}{4} \times 1\frac{1}{4}$, showing 4.....	10, \$2.00; 100, \$18.00
No. 3....holding 12 sections, $4\frac{1}{4} \times 1\frac{1}{4}$, showing 3.....	10, \$1.30; 100, \$11.00
No. 1½....holding 24 sections, $4\frac{1}{4} \times 1\frac{1}{4}$, showing 4.....	10, \$1.90; 100, \$17.00
No. 6....holding 24 sections, $3\frac{3}{8} \times 5 \times 1\frac{1}{2}$, showing 4.....	10, \$1.80; 100, \$16.00
No. 8....holding 24 sections, $4 \times 5 \times 1\frac{1}{4}$, showing 4.....	10, \$1.80; 100, \$16.00

Shipping-cases with Glass.

	with 3-inch glass	with 2-inch glass
No. 11....Same as No. 1.....Nailed, 35c; in flat, 1, 25c; 10, \$2.30; 100, \$21.00.....	100, \$20.00	
No. 13....Same as No. 3.....Nailed, 22c; in flat, 1, 15c; 10, \$1.40; 100, \$12.50.....	100, \$12.00	
No. 11½....Same as No. 1½.....Nailed, 35c; in flat, 1, 25c; 10, \$2.20; 100, \$20.00.....	100, \$19.00	
No. 16....Same as No. 6.....Nailed, 30c; in flat, 1, 22c; 10, \$2.10; 100, \$19.00.....		
No. 18....Same as No. 8.....Nailed, 30c; in flat, 1, 22c; 10, \$2.10; 100, \$19.00.....		

Red Catalog, postpaid

Dealers Everywhere

"Simplified Beekeeping," postpaid

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

where the good beehives come from.

HONEY GRADING RULES

GRADING RULES OF THE A. I. ROOT COMPANY, MEDINA, OHIO.

In harmony with the Federal net-weight regulations and the statutes of many states, all comb honey we handle is figured with the weight of the section box as well as the case excluded. To get the net weight, deduct the weight of the empty case and 1 lb. 8 oz. for the weight of 24 sections (1 oz. each).

COMB HONEY.

Extra Fancy.—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side. No section in this grade to weigh less than 14 oz. Cases must average not less than 22 lbs. net.

Fancy.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row. No section in this grade to weigh less than 13 oz. net. Cases must average not less than 21 lbs. net.

No. 1.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row. No section in this grade to weigh less than 11 oz. Cases must average not less than 20 lbs. net.

No. 2.—Combs not projecting beyond the box, attached to the sides and not less than two-thirds of the way around, and not more

than 60 unsealed cells exclusive of the row adjacent to the box. No section in this grade to weigh less than 10 oz. net. Cases must average not less than 18 lbs. net.

CULL COMB HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with combs projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than 10 oz. net.

EXTRACTED HONEY.

This must be well ripened, weighing not less than 12 lbs. per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained clean light honey may be used for extracted honey.

EXTRACTED HONEY NOT PERMITTED IN SHIPPING GRADES.

Extracted honey packed in second-hand cans, except as permitted above.

Unripe or fermenting honey, or weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,
FEBRUARY 6, 1915.

COMB HONEY.

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 13½ gross. The top of each section in this grade must be stamped, "Net weight not less than 12½ oz."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.
Honey in badly stained or mildewed sections.
Honey showing signs of granulation.
Leaking, injured, or patched-up sections.

Sections containing honey-dew.

Sections with more than 50 uncapped cells, or a less number of empty cells.

Sections weighing less than the minimum weight.
All such honey should be disposed of in the home market.

EXTRACTED HONEY.

This must be thoroughly ripened, weighing not less than 12 pounds per gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W," "L A," "A" should be used in designating color; and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.

STRAINED HONEY.

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.

Unripe or fermenting honey weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

YOU DON'T WAIT FOR MONEY WHEN YOU SHIP MUTH YOUR HONEY

We Remit the Day Shipments Arrive.

We are in the market to buy **FANCY AND NUMBER ONE WHITE COMB HONEY**, in no-drip glass front cases. Tell us what you have to offer and name your price delivered here.

Will also buy—

White Clover extracted and Amber extracted.

A few cars of California Water White Sage.

A few cars of California Orange Blossom.

When offering extracted honey mail us a sample and give your lowest price delivered here, we buy every time you name a good price.

We do beeswax rendering; ship us your old combs and cappings. Write us for terms.

THE FRED. W. MUTH CO.
"THE BUSY BEE MEN"

204 Walnut Street.

CINCINNATI, O.

QUEENS

Quirin's Improved Superior Italian Bees and Queens. They are Northern Breed and Hardy. . . Over 20 Years a Breeder.

PRICES	Before July 1st			After July 1st		
	1	6	12	1	6	12
Select untested . . .	1.00	5.00	9.00	.75	4.00	7.00
Tested	1.50	8.00	15.00	1.00	5.00	9.00
Select tested	2.00	10.00	18.00	1.50	8.00	15.00
2-comb nuclei	2.50	14.00	25.00	2.25	12.00	22.00
3-comb nuclei	3.50	20.00	35.00	3.25	18.00	32.00
8-frame colonies . .	6.00	30.00		5.00	25.00	
10-frame colonies . .	7.50	38.00		6.50	32.00	
1 1/2 lb. pkg. bees . .	1.50	7.00		1.00	5.00	
1-lb. pkg. bees . . .	2.00	10.00		1.50	8.00	

BREEDERS.—The cream selected from our entire stock of outyards; nothing better. These breeders, \$5.00 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames.

Above price on bees by pound, nuclei, and colonies does not include queen. You are to select such queen as you wish with the bees, and add the price.

Queens from now on are mailed promptly by return mail.

Free circular and testimonials.

H. G. Quirin-the-Queen-breeder
Bellevue, Ohio

Golden and Three-band Italian Queens . . . 45c

We guarantee them to be as good as money can buy. Our breeders are of the very best, our methods are the best known. If they are not satisfactory you can get your money back for the asking. Where can you get any more for big money? Virgins, 25 cts.; untested, one, 45 cts.; 12, \$5.00; 100, \$40.00; tested queens, 75 cts. Special offer to members of association thru their secretary. Get your secretary to write us. Queens we are offering you are choice. The Italian strain of bees have proven themselves able to resist foul brood to a greater degree than any other strain, and they are, therefore, the strain to buy if you have foul brood in your locality.

We also have breeders direct from Dr. Miller and can furnish queens of his strain, which is the best in the world. Start right, get some of the best in the world for the foundation of your strain.

To inquirers:—I am rearing no queens for sale, but am keeping The Stover Apiaries supplied with breeders from my best stock; and from thence you can obtain the same queens you could get directly from me.

C. C. Miller.

Marengo, Ill., March 1, 1916.

Prices of Dr. Miller's strain: Virgins, 50 cts. each; 12 for \$5.00; Untested, 60 cts.; 12 for \$6.00. Tested, \$2.00; Select Tested, \$3.50; Breeders, \$5.00 to \$10.00. Will replace inferior queens.

Capacity over 2000 per month. Safe arrival and satisfaction guaranteed.

The Stover Apiaries
Mayhew, Miss.

WARDELL STRAIN OF ITALIANS

Descendents from the Famous Root \$200 Queen

I was head queen-breeder for The A. I. Root Co. for a number of years, and during that time I originated the famous \$200 ROOT BREEDER whose stock has gone the world around. These bees for GENTLENESS, GENERAL VIGOR, and HONEY-GATHERING qualities have ESTABLISHED A REPUTATION. I have been for years developing and perfecting this same strain. While my prices may be higher than some others, my queens are cheap in comparison with their value.

Untested	during June, \$1.50; in July, August, and September, \$1.00
Select Untested	1.75 " " " 1.25
Tested	2.50 " " " 2.00
Select Tested	3.50 " " " 3.00

Prompt delivery assured.
Address all orders to

F. J. Wardell, Uhrichsville, Ohio

LOCKHART'S SILVER-GRAY CARNIOLANS.

"LINE BRED" for the past 30 years. They are VERY hardy, gentle, prolific, great workers, and builders of VERY WHITE combs, and use mostly wax in place of propolis. Untested queen, \$1.00; six for \$5.00; dozen for \$9.00. Select untested queen, \$1.25; six for \$6.00; dozen for \$11.00. Tested queen, \$2.00; six for \$9.00; dozen for \$15.00. Select tested, \$3.00. Best breeder, \$5.00. Extra select, the very best we have, \$10.00. Safe arrival guaranteed in United States and Canada. No foul brood here.

F. A. LOCKHART & CO., Lake George, N. Y.

GENTLEMEN:—Enclosed you will find \$1.25 for a select untested Carniolan queen. I have bought Carniolan queens from Texas and other places, but they don't compare with your "Line Bred" strain.

Homer, N. Y., July 27.

Yours truly, M. H. FAIRBANKS.

F. A. LOCKHART & CO., Lake George, New York.

Queens--Queens--Queens. We are breeding from the best three-band Italian stock. Untested, 50 cts.; select untested, 60 cts.; tested, \$1.00; select tested, \$1.50 each. We have been breeding queens for more than 25 years. We guarantee safe arrival, no disease, and every one purely mated.

W. J. FOREHAND & SONS

FORT DEPOSIT, ALABAMA



Gleanings in Bee Culture

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HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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PARIS, FRANCE.—E. Bondonneau, La Korrigan, Avenue de la Gare. A Juan-les-pins. France. *Per year, postpaid, 8 francs.*

GOODNA, QUEENSLAND.—H. L. Jones. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 6/7 p.*

DUNEDIN, NEW ZEALAND.—Alliance Box Co., 24 Castle St. *Per year, postpaid, 6/7 p.*

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HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

ALBANY AND SCHENECTADY.—The crop of white honey will be a good one in this section. Producers are offering plenty of extracted already, but not much comb honey is ready for market yet, and weather conditions are not favorable for selling the latter. To quote prices now would be to guess at what they may be later on.

CHARLES MACCULLOUGH.

Albany and Schenectady, Aug. 3.

CHICAGO.—The new crop of honey is arriving, but so far no sales have been reported. This, probably, is owing to the extreme heat of the past two weeks, which debars sales. There is still quite a quantity offered for sale of the crop of 1915: and until this is out of the way, and the weather changes there will be little if any movement. Beeswax remains at 28 to 30.

Chicago, Aug. 3.

R. A. BURNETT & Co.

KANSAS CITY.—On account of the extremely dry weather, the honey-flow has stopped, but there is quite a surplus of new comb honey on the market. Strictly No. 1 white comb honey in 24-section cases is selling at \$3.25 to \$3.40 per case; No. 1 amber comb honey, \$3.00, and No. 2 amber at \$2.90 to \$3.00. Strictly fancy white extracted honey is selling at 8 to 8½, with a good demand. The demand for comb honey is only fairly good.

C. C. CLEMONS PRODUCE CO.

Kansas City, Aug. 5.

NEW YORK.—There are no prices established as yet on the new crop of honey, comb as well as extracted. From reports we have thus far received it seems evident that a good crop of white honey has been produced in the eastern and middle states, whereas California reports a very short crop, especially of sage honey. The old crop is pretty well cleaned up with the exception of West India, which is arriving in large quantities, and there seems to be an unlimited supply.

New York, Aug. 5. HILDRETH & SEGELKEN.

ST. LOUIS.—There is no change in this market since our last quotations. Comb honey is still very dull, and so far very little new is arriving. Southern extracted honey in barrels and 60-lb. cans is in good demand, and receipts are meeting ready sale. We quote amber extracted in barrels from 5½ to 6; in 60-lb. cans, from 6 to 6½, according to quality and quantity. Comb honey is ranging in price from \$2.50 to \$3.25 per case. Beeswax brings 29 cts. for pure; inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, Aug. 5.

DENVER.—New crop comb honey is selling in the local market at the following jobbing prices: Fancy, per case of 24 sections, \$3.38; No. 2, \$3.15; No. 2, \$2.93. White extracted, 8½ to 8¾ cts. per lb.; light amber, 8 to 8¼ cts. per lb., and amber, 7 to 8 cts. per lb. We pay 26 cts. per lb. in cash and 28 cts. per lb. in trade for clean, average yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION,
Denver, Aug. 2. Frank Rauchfuss, Mgr.

Deposit your Savings with The SAVINGS DEPOSIT BANK CO.

of MEDINA, O.

The Bank that pays 4%

Write for Information

A.T. SPITZER
PRESIDENT

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VICE-PRESIDENT

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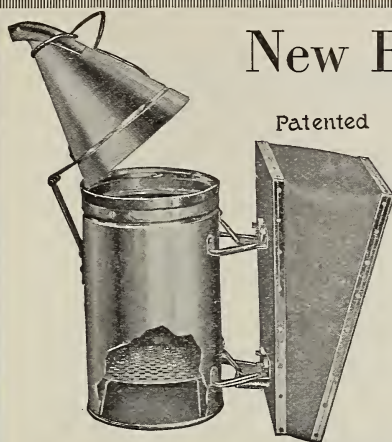
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MEDINA, OHIO

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The kind that does not break in folding

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by return freight, mail, or express

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A. W. DARBY, Alburg, Vt., May 3, 1916.

We have forty years' experience and thousands of satisfied customers. Are you one of them?

Dadant & Sons, Hamilton, Illinois

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

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AUGUST 15, 1916

NO. 16

EDITORIAL

Excessive Freight on Comb Honey

WESTERN beekeepers having comb honey to ship in less than carload lots should write to R. C. Fyfe, chairman Western Classification Committee, Chicago, Ill., protesting the new classification effective Sept. 1. See editorial in last issue.

Our Cover Picture

IN most localities an ideal place for bees is that where there is partial shade. Dense shade, however comfortable it may be for the beekeeper, is not advisable so far as the bees are concerned. The picture on our cover shows three colonies kept for experimental purposes under the shade of guama trees (*Inga laurima*). In the background are shown a few yucca plants. These bees are part of the apiary of Rafael Vidal, Mayaguez, Porto Rico, whose interesting article appeared in our May 15th issue, page 409.

The Possibility of Bees Carrying Blight Germs from One Apiary to Another when Trees are out of Bloom

THE following letter received from Prof. H. A. Gossard, referring to our editorial on page 584, will explain itself.

I was quite interested to read your editorial comment on my reply, and find that you are again mistaken in supposing that I think bees carry blight to any great extent except when the trees are in bloom. However, it is not impossible that these might carry the blight germ from one aphid colony to another when trees are out of bloom, or at times when bloom is scarce and the bees are very busy collecting honey-dew. Possibly they do not visit the apple aphids to any great extent for this purpose. The blight germ will live for ten successive days in aphid honey-dew on a leaf that is moderately shielded from sunlight, and will survive even when the leaf has apparently become perfectly dry for at least one day. We have some evidence, not wholly conclusive, that the germs multiply in honey-dew as they do in nectar and in the sap of the

tree. Various species of flies and nectar-loving wasps visit the honey-dew more numerous and constantly than do the bees, and are, therefore, much more apt to become carriers in this manner.

I am also very sure that the apple orchardists of many surrounding states will disagree emphatically with your statement that blight is not to be feared to any extent on apple-trees. I am sure that fifty per cent of our orchardists would state very vehemently that, for the past three years, blight has been a greater threat to apple orchards in Ohio than any other bacterial or fungus disease or insect pest. However, I have regarded this as, in all likelihood, a temporary condition—simply a wave that sometimes comes, and that, after two or three seasons, subsides to its old status. During the present season the amount of blossom blight has hardly been beyond the ordinary—in fact, I am inclined to think that, in the state as a whole, it has been less than ordinary.

H. A. Gossard, Entomologist.

Wooster, Ohio, July 27.

The Ohio State Beekeepers' Field Meet at Medina, Aug. 25 and 26

IT has been definitely decided by the officers to hold the next Ohio field meet at Medina on Friday, Aug. 25, and the morning of the 26th. No definite program has yet been arranged. While there will be papers and addresses, the principal work in hand will be practical field demonstrations at the home yard and at the queen-rearing yard among the basswoods. New and modern apparatus for taking extracted honey will be shown on the afternoon of the first day. A power extractor, steam uncapping-knife, honey-pump, and capping-melters will all be shown in practical operation. About a thousand pounds of honey will be extracted to give one an idea of the entire method of procedure. Smaller machines will also be exhibited.

An opportunity will also be given to witness the operation of bottling honey and of making comb foundation. Arrangements will be made to carry visitors to a

few of the outyards, and lunch will be served at noon of the first day.

The operation of rearing queens from start to finish will be demonstrated at the queen-rearing yards among the basswoods.

All are cordially invited to be present at this field meet, whether they live in Ohio or some other state.

It is expected that Dr. E. F. Phillips, of the Bureau of Entomology, Chief Inspector N. E. Shaw, of Ohio, and other prominent beekeepers, will be present. Possibly and probably one of the Dadants will be with us.

The Color of Pollen from White Clover

On page 521, in his regular department, Dr. Miller raises the question whether Mr. Lovell, in his article on page 477, has properly indicated the color of pollen from white clover. Mr. Lovell replies as follows:

Mr. Root:—I have just read Dr. Miller's remarks, page 521, on the color of the pollen of white clover. My article was written in the winter, when there was no opportunity to examine personally the color of white-clover pollen, and I was confident that I had seen it stated that it was greenish yellow. This afternoon I have been studying the color of the pollen, both in the field and under the microscope, and my results lead me to believe that Dr. Miller has considered the matter chiefly from the hive end.

The color of the pollen on fresh anthers which have recently opened is not brown, as Dr. Miller says, but yellow, as in the case of many other flowers. Under a lens, with the light falling on it, the pollen has a golden sheen similar to gilt tinsel. In the field I noticed that a number of bees had small balls of brown pollen in the pollen-baskets. If this was collected from the white clover it must be remembered that it was moistened with saliva and perhaps other glandular secretions, and manipulated by the fore and middle legs before it was deposited in the baskets, which might easily give it a color different from what it has in the anthers. Did Dr. Miller examine the pollen in the anthers of fresh flowers?

If you will examine a head of white clover you will notice that there are no anthers exposed—they are all enclosed in the carina, or keel. When a bee alights on a flower and pushes down the carina and wings (alæ) the anthers and stigma protrude and strike against the under side of the body of the bee. When the bee flies away, the anthers again return within the keel. It is, therefore, not an easy matter for a bee to collect pollen directly from the anthers of white clover. Of the bees sucking on white clover, which I watched this afternoon, not a single one attempted to gather pollen. Many of

them had no pollen on the thighs; but a few, as stated above, had small balls of brown pollen in the baskets. Whether this was white-clover pollen I cannot yet say definitely. I then watched the bees flying into the hives, as they returned from the field by hundreds. The white-clover flow is here at its height. Many, very many, of these bees brought in no pollen; others had balls of yellow pollen which may or may not have come from the blossoms of white clover. A single floret of white clover yields only a small amount of pollen. This may be rubbed off on the ventral side of the bee, which is then able to gather it. How far does it do so? Has Dr. Miller examined the pollen in his hives under a microscope? Is he certain that white-clover pollen is as abundant as he supposes?

The yellow pollen which I noticed on certain bees flying into the hive seemed to me a different shade from that of white clover.

John H. Lovell.

Waldoboro, Me., July 5.

Honey-crop Conditions and Prices; the Effect of the Drouth

HAD it not been for a general drouth which set in the last of July, there would have been an enormous crop of clover honey. As it is, there has been a large yield in many localities in spite of the shutting off of the nectar supply. In some others the dry weather stopped the flow just when it was getting ready to make a good showing in the supers. In still others it checked the flow just as it started. Taking everything into consideration, in all probability the clover crop will be much larger than that of last year, but probably no larger than it has been some other seasons.

The best clover flow seems to center around Michigan. From that state reports are universally favorable. With some exceptions they are good in Wisconsin, Minnesota, Illinois, Iowa, Kansas, Missouri, Ohio, Pennsylvania, New York, and all the New England states. In all of the territory named (and that covers the largest part of the clover area) there have been some partial and complete failures; but we believe we never encountered a season when the reports were more uniformly favorable thruout the clover area than this year of 1916.

The drouth is so severe in some localities that it may kill off the clovers this fall. If so there may be a possible failure of clover for next year. This means that if prices on clover honey go too low, and the beekeeper can afford to do so, he will hold his crop over for next season.

Reports from the western territory com-

prising the alfalfa and mountain-sage country, are somewhat meager and scattering. There were very heavy winter losses in Montana. Many colonies were so weak that they were in no shape to catch a flow, even if it had come. In many portions of the state it did not come, so we shall not expect much from Montana.

In Nevada according to one report late frosts injured the alfalfa, and there will be only from a third to a half of a crop of alfalfa. Around Reno the main flow, starting about July 3, is already gone.

In Colorado the few reports we have received indicate from a light to a fair crop.

In Arizona and Imperial Valley, California, the yield has been below normal. Some of the largest beekeepers in Imperial Valley are discouraged. Further north in California the crop has been estimated at from one-fourth to one-half of a crop.

The possible and probable shortage of honey in the West, comprising the irrigated districts, the severe drouth in the East, with the prospect of clover being short next year, may have and should have a tendency to hold up prices, altho if reports are correct it is evident they will sag below those of last year. During the middle and fore part of July it looked as if prices on both comb and extracted clover honey would go down to a low level. Buyers were very shy about making offers. In one case a buyer refused to make any offers, and finally, after repeated requests to name some figures, he mentioned six cents on a fine article of extracted. The buyer made this low offer expecting it would be turned down as he did not wish to buy then; but he was snapped up instantly with a carload, with the offer of more at the same price. This has had a tendency to demoralize prices; but the drouth has given prices an upward boost and beekeepers are more hopeful.

TRAVEL-STAINED COMB HONEY.

The market is still well stocked with a fine grade of comb from last year. The new crop is now ready to be delivered, and it is reasonably certain that the prices will be easier.

Probably some of the comb honey this year will be travel-stained because the clover yield, owing to the rainy weather followed by drouth has been irregular—a little every day, then stopping entirely, and then starting briskly. With conditions like this where the flow is slow, there is almost sure to be some travel-stained comb honey.

Our readers are requested to send in their postal-card reports. Indicate what the final yield has been, and what prices are being secured. In mentioning prices,

be sure to say whether they are retail, wholesale, or jobbing.

Later.—Some good rains have followed, and the drouth seems to be broken for the time being.

The Isle of Wight Disease or Bee Plague in Ohio

THE bee-inspectors of Ohio have found in several of the apiaries in southern Ohio and in the western part of the state a disease among the adult bees resembling bee paralysis or Isle of Wight disease. In some cases the colonies have been considerably reduced in strength, right in the midst of the honey-flow. Some scare headlines in the daily press have appeared, referring to a certain bee plague.

In our issue for July 15, page 583, we mentioned the fact that Mr. C. H. Boeck, of Newmarket, England, who had been investigating the Isle of Wight disease for the Board of Agriculture of Great Britain, had come to this country to discover whether we had the same or a similar disease here. On the very morning that the scare headlines concerning the bee plague appeared in our daily papers Mr. Boeck arrived in Medina. At the earnest solicitation of Dr. E. F. Phillips we drove with Mr. Boeck over to Weston, Ohio, where we met by appointment not only Dr. Phillips, but Bee Inspector N. E. Slaw, of Ohio.

This Weston apiary is owned by one of the assistant inspectors, Mr. A. C. Ames. Unfortunately for the purpose of this investigation the disease had almost disappeared at the time of our visit. In fact, it has been in the habit of coming and going. Sometimes the disease will nearly disappear, and then return with all its former virulence. Mr. Ames, altho situated in a favorable locality, had estimated that his crop of honey had been materially reduced on account of the heavy losses from his hives. On some occasions a number of dead and dying bees were scattered all over the vicinity—so much so that the dead and dying bees attracted the attention of many people who were not beekeepers. "You can imagine," said Mr. Ames, "that when other people find dead and dying bees all over the ground, within a short distance of the apiary, the situation is somewhat serious."

Mr. Phillips and one of the bee-inspectors reported finding a similar trouble at several of the southern apiaries that he had inspected.

On arrival at the Ames apiary we repaired to the beeyard. As already stated, the disease had all but disappeared; but

there were several specimens of diseased bees scattered at the entrances of some of the hives. They made a vain attempt to fly, and appeared to be in great distress. There were no symptoms of bee paralysis; and the trouble, whatever it was, appeared to be different from anything else that the average beekeeper in this country encounters. There were numerous dead bees in front of the entrances of nearly all the hives; but neither the dead nor dying look any different from the ordinary normal bees. Beyond the conditions of apparent distress and disposition to leave the hives, there seemed to be nothing wrong. Mr. Bocock examined the bees very carefully. He was entirely of the opinion that it was not bee paralysis such as he had seen in various parts of the United States, but he thought the bees showed the initial symptoms of Isle of Wight disease.

Some specimens of the bees had been sent to Dr. Phillips to be examined by his bacteriologist. An examination of the intestines showed that they were destroyed. But in only *one bee* was *Nosema apis* found. All the rest showed none.

When Mr. Bocock was in Washington he and Dr. Phillips examined a colony of bees in Maryland that was badly affected with paralysis. In fact, according to Dr. Phillips, it was a typical case of American bee paralysis; but not in any one of the affected bees could *Nosema apis* be found.

At the Ames apiary, at the time of our visit, the bees were working briskly on red clover. They had so nearly recovered that they were storing honey in supers. Some of the colonies were two and three stories high, and appeared to be in a high state of prosperity. Had our attention not been particularly drawn to the situation, nothing abnormal would have been noticed; but that there had been trouble was very apparent. If it is Isle of Wight disease it must have been waging a losing fight against bees which were nice Italians.

THE ISLE OF WIGHT DISEASE IN GREAT BRITAIN.

Mr. Bocock reports that it is his opinion this disease has destroyed 80 per cent of the bees in England. It has made particular inroads in Hampshire, Berkshire, Cambridge, Suffolk, Norfolk, and Essex counties. It has spread from southern England clear up thru the whole country. So far there seems to be no remedy, and the bees die off by the thousands in and out of the hives. It has been discovered that some strains of bees are much more resistant than others. The black bees of Great Britain fall easy victims. Mr. Bocock and

his associates have observed that Italians show most resistance, and he is somewhat of the opinion that the American Italians would hold the Isle of Wight disease in check.

It is possible that some apiaries in Ohio and elsewhere have had the Isle of Wight disease; but so far no apiaries have been completely wiped out, and practically all of them, sooner or later, have entirely recovered. If the Italians are more resistant to the Isle of Wight disease—and we know they are more resistant to American foul brood—it will afford a great deal of encouragement not only to our American beekeepers but to the British as well.

While *Nosema apis* has been found in the intestines of the Isle of Wight diseased bees, the very fact that the same organism is found in healthy bees leads to the opinion that it is not the only cause.

It is well known that the germs of pneumonia may reside in some human beings that are resistant, but cause an immediate outbreak of the disease in other persons to whom these germs are communicated. If *Nosema apis* is the primary cause of the Isle of Wight disease, then apparently it has no effect on some strains of bees, particularly on a vigorous strain of Italians. On the other hand, it is possible that *Nosema apis* has to work in conjunction with some other organism before the actual Isle of Wight disease makes any headway. There is much to be learned of this peculiar malady that has wrought such destruction in Great Britain; and if Mr. Bocock shall be able to throw any light on the proposition he should and will receive the thanks of both American and British beekeepers.

In this connection it should be stated that *Nosema apis* is not a bacterium but a protozoan. It is, therefore, much more difficult to handle. Whatever it is, it seems to act on the inner lining of the intestines of the bees. In some cases it breaks down the tissues altogether.

From the various reports of the peculiar disease that has attacked adult bees, it is apparent that there is something in the United States that is not the same as bee paralysis; but the very fact that the trouble, whatever it is, disappears in the second season shows either that we do not have the Isle of Wight disease, or that that disease is not able to make any serious inroads among the American Italians; or it may be possible that our climatic conditions are enough different to make serious inroads of the disease impossible in any strain of bees.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



ALLEN LATHAM, in speaking of rearing queens, p. 593, you mention "the employment of a full colony of bees for some days" as a matter of expense. "In this locality" it isn't a matter of any expense at all, for during the busy season there are always colonies doomed to ten days' queenlessness to keep them from swarming.

P. C. CHADWICK, I accept your correction, p. 587. It wouldn't do at all to set out cappings as a free-for-all lunch in any foul-broody locality. But the bees can clean them up without any such exposure, by the plan given by H. H. McIntyre, p. 596, or something similar. But I can't agree that the worst feature is the danger of starting robbing. I'd rather have robbing started than foul brood; and anyway it wouldn't start robbing "in this locality." [We are glad to get your indorsement of the McIntyre treatment of cappings. It seems to us that the plan is excellent.—Ed.]

THE doctrine is advanced, p. 517, that when it is uncertain whether a virgin is present, the thing to do before risking a laying queen is to give a frame of brood to see whether cells will be started. I've practiced that no little, and have also practiced giving young brood to a nucleus having a virgin, so as to hurry up her laying. But some New England beekeepers objected that that was a pretty sure way of losing the virgin, and I'm afraid they are right. At any rate I found that more virgins disappeared a year or two ago in nuclei to which I gave brood than in those I let alone. I wonder how others have found it. [It is our practice to give young brood in colonies that we suspect to be either queenless or having only a virgin. Rather than keep the colony queenless longer, we desire to introduce a laying queen. But it would be quite useless to attempt it unless we knew positively that the colony was without a virgin, which fact is determined by the building of cells. We would rather lose the virgin than to start laying workers.—Ed.]

If you do a good job of looking for cells and cell-cutting, and have your queens' wings all clipped, and do it regularly once every week or ten days, you will be absolute master of the swarming problem so far as comb-honey production is concerned," says W. A. Latshaw, p. 608. I can imagine with what eagerness some beginner will say, "That's just what I want. How easily I

can prevent swarming!" And then the bitter disappointment when he finds his bees swarming out, possibly the next day after he has carefully cut out every queen-cell. It is within the range of possibilities that Mr. Latshaw has a strain of bees that can be kept from swarming by cell-cutting; but the average beginner—indeed, I think the average veteran—has no such bees. For a great many years I have practiced cell-cutting, and I don't think I could be induced to give it up. I have tried to encourage every tendency toward a non-swarming race of bees. Each year I have a good many colonies that go thru the whole season without swarming that would be practically certain to swarm if I didn't kill cells. But I'm sorry to say that I have a much larger number that, without any other treatment, will go straight on to swarming, in spite of all the cell-cutting I may do. So long as I find upon each round nothing beyond eggs or very young larvæ, I keep on cutting cells. But if I find cells sealed, or nearly ready to seal, I know that cutting them out will do no good, and that if I trust to cutting out such cells such a colony will be practically certain to swarm, possibly inside of a week, possibly the next day, with only eggs in cells. Cutting cells delays swarming, in some cases prevents it, but cannot be relied on in the majority of cases. [We quite agree with you, doctor. We kept swarming fairly well under control this season, but the boys were instructed to cut out the cells when they were just started, and to keep on cutting them out every seven days. They were further told that if the cells got well under way, honey conditions fair, and weather hot, the swarming would probably take place in spite of the cutting. Like yourself we cut out the cells anyway, gave lots of room and bottom ventilation.]

The great trouble is, beekeepers let the season and the bees get ahead of them. In bee culture there are certain things that must be done at a certain time. Mr. W. A. Latshaw probably had conditions that were favorable, and very possibly and probably he cut out the cells when they were very young. But if he has since had a season like this one he will probably come to the conclusion as did one of our outyard men who came in one day very much disgusted, saying cell-cutting was "no good, as the bees go on swarming just the same." Further investigation showed that cells were pretty well advanced, and swarming well under way.—Ed.]

J. E. Crane

SIFTINGS

Middlebury, Vt.



My observations agree with Dr. Miller as given on page 469, June 15, that queens very decidedly prefer old comb to new, especially in early spring. After the weather is hot it does not seem to make so much difference.

More clover in bloom than I ever saw before in one year. I think I have seen just as much white clover before, but now it is white and alsike. I never saw an alsike-clover blossom till after I was twenty-eight years old.

Riding thru a large fruit-farm recently where cherry-trees had been set between every other apple-tree, I couldn't help noticing how much more heavily the trees were loaded with fruit as we came near where the bees were placed in the orchard.

There is a difference of opinion as to the advisability of our country making large expenditures in preparing to meet an imaginary enemy. But there is but little question as to the wisdom of the beekeeper being prepared for the flow of honey when it comes. I believe in this kind of "preparedness."

Swarmed, swarm, swarming! I never knew such a year. Bees began the latter part of May, and they are still vigorously at it, July 16, and it looks now as tho they would keep it up till August or September. If honey had been stored in proportion we might rejoice; but it was too cold and raw till June 23, since which honey has been coming in in a pleasing way.

I was pleased with the editorial in GLEANINGS for June 15, on "Exaggeration in Advertising;" in fact, I was delighted. It cannot be denied that, during the last year, there has been more or less advertising that was no credit to the advertisers nor to the journals publishing them. It is a source of pleasure to know that this sort of thing is to be cut out in the future, and that the brakes are on with a vim.

Dr. Miller, on page 427, June 1, refers to drones reared in queen-cells, or, rather, an attempt of bees to rear a queen from drone eggs or larvæ. We run across such, I believe, every year, and sometimes many of

them. I have never known a drone larva to be exchanged for a worker larva; nor have I ever known such to hatch, altho the drone larva in such cells seems to reach nearly maturity before it dies.

I am much interested in that new edition of the A B C and X Y Z of Bee Culture. At first it was the A B C book; and when it had grown older and larger it became the A B C and X Y Z book. Now, isn't it about time it lay aside these juvenile and youthful names and take on the more mature and dignified name of "Encyclopedia of Bee Culture," which it really is? I am astonished at the amount of information it contains when I look it over, and it is a pleasure to recommend it to beginners seeking information.

Mrs. Allen, p. 428, June 1, expresses her amazement that the tradition of the necessity of informing bees of the death of any member of the family is still believed by many persons. This is an old and instructive tradition or superstition, as we may call it. How did it start, and why has it been handed down from generation to generation? In earlier ages, when less was known of bees than at present, some one died; his bees were neglected, and they, too, many of them died. Many such cases may be remembered by some one who then tries to account for it. It may have been suggested that, as bees were very wise and sensitive creatures, they should have been informed of the death of their master. No one had done so, and the bees have died. Surely this must be the cause. So it is handed down from one to another, no one taking pains to study into the real cause of the death of the bees. These thoughts have been suggested by looking over a yard where the owner died last fall; and I said to myself many times as I looked them over, "I guess no one informed these bees of their master's death." It was in early May. I was told there were 128 colonies last fall, but I found only 100 alive. Some 50 more were nearly gone. There were, indeed, only a few really good colonies. Some had starved. Some I found with feeders still on the hives; some with leaky covers; some without packing. A great gap had been left in a fence put up for a windbreak, so the north wind had a fair sweep thru the yard. Surely it was a sorry day for that yard of bees when their master died, and they had to pass the winter with so little care.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas



THE BEXAR CO. ASSOCIATION PICNIC.

A most interesting event was that of the annual beekeepers' field meet and picnic at the apiary of Mr. E. G. LeStourgeon, about seven miles south of San Antonio, on June 18. The gathering was quite large, and consisted of representative beekeepers from Bexar and adjoining counties. Refreshments were amply supplied, and there was "buzzing" of beekeepers during the entire day. The value of such coming together can not be estimated in dollars and cents.

The afternoon was profitably devoted to a program of timely discussions by some of the prominent beekeepers. The old veteran beekeeper, M. M. Faust, of Floresville, discussed the foul-brood situation and inspection work, and touched also on the market conditions existing at the present time. The writer followed with a plea for co-operation and organization of the beekeepers in order to prevent the disastrous losses thru low honey prices brought about by improper handling of our honey crops. In this he was joined by B. I. Solomon and E. G. LeStourgeon in vigorous remarks in the same direction.

The outcome of the above-mentioned meeting was a motion by the writer that a meeting of the honey-producers of Texas be called at an early date by a properly authorized committee to be selected, and that an effort be made to organize along the same lines as those of the Colorado honey-producers and other like organizations that have been successful in marketing the products of its members. A call for such a meeting was issued July 1, signed by E. G. LeStourgeon, secretary of the Bexar Co. Beekeepers' Association; M. M. Faust, of Floresville, for Wilson Co.; Louis H. Scholl, of New Braunfels, for Comal Co.; Louis Biediger, of LaCoste, for Medina Co.; Henry Brenner, Seguin, for Guadalupe Co.; W. A. Winters, Jourdanton, for Atascosa Co. This was the beginning of the move for organization.

THE TEXAS HONEY-PRODUCERS' ASSOCIATION.

A new record was established in Texas beekeeping when the greatest gathering of most of the foremost beekeepers assembled in the Chamber of Commerce Hall, San Antonio, July 15, in response to the call above mentioned. Over fifteen thousand colonies

were represented by the owners present, among them being more than a dozen with 500 colonies or more, and running up to over 1600 colonies as the highest number of any one beekeeper.

After much timely and valuable discussion on the question for which the meeting was called, the writer's motion to organize and adopt the Colorado Honey-producers' Association plan and rules, with such changes as may be necessary, and to appoint a board of seven directors to perfect the organization, was duly carried.

The officers and directors are as follows: President, Louis H. Scholl, New Braunfels; Vice-president, W. J. Stahman, Clint; Secretary, E. G. LeStourgeon, San Antonio. A manager and a treasurer are to be selected later.

A capital stock of \$25,000 in \$10 shares, with a limit of one hundred shares to any individual or group of individuals, was decided upon. Over \$5000 of this stock was subscribed for before the close of the meeting, and it is hoped that the rest will also soon be taken care of.

There are to be a good many benefits for the members of this organization aside from the effort to obtain better prices and a better market for the beekeepers' products. Co-operative buying and selling of supplies and other needs of the beekeeper are to be taken care of. The dissemination of information on crop conditions, market prices, market conditions, etc., are all to be looked after, and the protection of the members in a number of directions is to be another important item.

A BIG FIELD FOR THIS ASSOCIATION.

There is much to do for this new organization. With an effort in the direction of putting on the market thru its organization a superior and more uniform pack of honey, graded according to the rules set down by the association, one step toward a better market and better prices will have been obtained. The next most important effort is that of regulating, as far as this is possible for the association to do so, the prices of honey, instead of letting this go on rampant as has been the case almost every year. With a hearty co-operation of the beekeepers this association can do much in this direction, and the beekeepers as a whole may enjoy the benefits therefrom. I am looking for better times for the Texas beekeeper, if the beekeepers will help make them so.

E. G. Baldwin

FLORIDA SUNSHINE

Deland, Fla.



Continued from July 15th issue.

"Are there many beemen about DeLand? I used to think there was not much chance for an apiarist anywhere in the high pine-lands; but conditions may have changed."

More all the time, or would be, did not an occasional bad year like the present, for orange honey, keep over-enthusiastic beginners or recruits from the business. Our only source of good table honey here is, however, that from the citrus fruits (orange, grapefruit, etc.).

"Do you have trouble with dragon-flies? We do, and also from skunks at times."

About every other year, on an average, the dragon-flies "gobble up" half our virgins on their wedding-tours! This year, happy to say, they have been conspicuous by their absence. As a result, our virgin queens have mated beautifully, and with almost no loss. I wish I knew the cause and remedy. I am still hoping that the U. S. Department, under the direction of Dr. Phillips, may be able to get at some method of exterminating the pests. "Jimmy Skunk" does not bother us here at all, nor anywhere else where I have ever run an apiary.

"In spite of all the pests we have, I average about 120 lbs. per colony, in fair years, and as high as 150 lbs. in good years. One year I extracted 10,680 lbs. of honey from 88 colonies (121 lbs. per colony). The best I ever did was to get 183 lbs. per colony from 20 colonies extra strong in one season."

Your average is good for any part of the state. Especially does it seem to me that your average of 121 lbs. per colony, which you say was from saw palmetto, is a remarkably fine showing. I should say that this can not be duplicated from that source oftener than once in a dozen years. Do you? Your record of 183 lbs. per colony, while not bad (indeed, very fine), is not anywhere near the state record for a rousing yield. A record of 400 lbs. per colony has been made on the East Coast. Mr. W. S. Hart, of Hawks Park, secured 41,000 lbs. of fine honey from 116 colonies, spring count, being an average, you will see, of 353 lbs. per colony for the season for the entire yard (extracted honey). But that was "before the freeze" in 1894-'5 (will A. I. R. note this, see p. 335, April 15?).

The June bloom of orange-trees in the state this year was a marvel. It was never

before so profuse. Tho it did not last as long, nor yield generally as much as the same bloom would have done in March, some report as much as 60 lbs. per hive from this source in June. Mr. Harry Hewitt, of Apopka, Fla., seems to have won the prize for big yields from it. We congratulate him, especially as his early crop was a failure.

OUR BEES HAVE GOOD WINGS AND STINGS.

"Brother Baldwin, were it my privilege to assign you a task I would give you the problem of introducing a bee into your state that would fly more than 1¼ miles for nectar," p. 429. Friend Chadwick, did I think for one minute that we have not already such a bee with us, I would take the first train for California and secure some of the good Sunset stock of the State of the Golden Gate, with which to improve our flying qualities. The orange-trees, for example, near us, bloom at varying periods. I have traced my flying bees directly and unmistakably by their route thru the air, straight from the yard to groves 2 and 2½ miles away, many times. I have done this with honey coming in at profitable rate too; and I have known them to go two or more miles to the mangrove islands, and gather successfully and profitably. Moreover, there is no saw palmetto within a radius shorter than two miles from my home yard; and yet my bees gather considerable palmetto honey. So you see, friend C., I do not accept the premise you assume. I am wondering if possibly you do not confuse the initials of my name with those of a good friend of mine, Mr. F. M. Baldwin, of Sanford, Fla. His remark in a previous number of GLEANINGS seems to have suggested your reply. I am sure his conclusions would not hold for the state as a whole, however true he may have found it on special occasions. No, our bees, our "Cracker bees," can fly as far and sting as hard as any in the Union.

SHALL WE DESTROY THE BEE-MARTINS?

No matter how well "prepared" a teacher may be, now and then will come a query that seems at first somewhat of a "poser." Such was our experience lately. A good friend of our fraternity, and a successful real-estate man as well, Mr. S. H. East, of Clearwater, Fla., sent us the following:

What information can you give me about bee-martins or kingbirds, as enemies of bees?

The pretty little fellows, with white breast, gray back, and red or purple under the gray top-knot—such are very numerous around here, and pick up a lot of my nice bees. Shooting is too slow, and rather expensive. If it can be established that they take only drones, I won't mind, as I have plenty of drones and to spare. I find the craw chockful of bees, but have not been able to determine whether they are drones or worker bees.

When I had read this I stopped and scratched my head; then I did it some more. I had had experience with almost everything that flies about the apiary; but this was more avicultural than apicultural—more biological than beeological. Tho the pretty bee-martins are housed by my neighbors, and fly often about our home place, I had, personally, never seen them haunting the beeyard, nor had they ever impressed me as enemies of the bees. In fact, I had always had a lingering impression somewhere in the back of my head, from my boyhood days, that they were really friends, not enemies. However, not wishing to hazard a guess I wrote at once to Washington, and also to the State Department at Harrisburg, Pa. The replies that came promptly were so illuminating that it seems most pertinent to the time and place and circumstances to quote them at some length.

Professor Surface, Economic Zoologist of Pennsylvania, and well known to all beemen, himself an apiarist of considerable note, and a careful and accurate scientist, says that the bee-martins are kingbirds that are flycatchers. Examination of hundreds of stomachs of these birds has shown that they but rarely eat worker bees; that they eat more drones than workers; that out of hundreds of stomachs examined, only four or five were found that actually contained the remains of worker bees. He adds that they *do* feed altogether on insect food, among which are some of the worst pests of the cultivated plants and trees, and even eat larger insects like robber flies, the latter being enemies of the bees. As the robber flies eat honeybees (including workers and queens), the martins perform a real service to beemen.

We also wrote to Dr. Phillips, of Washington, who referred our letter to the Bureau of Biological Survey; and the chief of that department, Mr. H. W. Henshaw, replied most fully and courteously as follows:

We have examined 665 stomachs of the common kingbird (bee-martin). Honeybees were found in 22; the total number of bees was 61, of which 51 were drones. The above percentage of drones is so large that we

think the harm done by eating the comparatively small number of workers is fully compensated by their destruction of the drones, most of which are superfluous. It is believed, therefore, that the destruction of the kingbird, on account of its bee-eating propensities would be a mistake, unless possibly an occasional individual should develop an abnormal appetite for bees. In such cases shooting would be the only remedy.

In addition to its other useful habits it should not be forgotten that the kingbird has a strong animosity against crows and hawks, and never hesitates to drive them from any locality it considers its own. This habit is well known, and the kingbird (martin) is, therefore, an asset on the farm it inhabits.

The above reply is so enlightening, so full, accurate, and detailed, that it leaves nothing to be said. Note that the figures show, in other words, that, say, 661 martins (which would be more than any one locality would be likely to have), would consume, all told, but *ten* worker bees at a single feeding-period; that is, 66 martins would consume but one worker on an average, at one feeding-period. Even if we were to assume that the martins fed ten times a day on bees, the 66 birds would eat but ten workers a day; and 66 martins would make a pretty good-sized aviary of these birds for any premises. The added information, that they eat robber-flies, is very hopeful.

Some time ago we asked whether the United States authorities could not give us some methods for destroying the robber and dragon flies. May not a way out lie along the lines here suggested? Four or five years ago our own apiary was badly pestered by the dragon-flies, or mosquito-hawks. So bad were they usually that queen-rearing operations were sadly hindered, often almost prevented altogether. About two out of every three mating virgins would be destroyed. About that time our neighbor, who loves birds and trees and flowers, set up many martin-houses on his place. These pretty little feathered friends are flying in ever-increasing numbers about our yard, tho not particularly near the bees. For the past three years we have had very little trouble with the robber-flies. We wonder if the two facts are coincidental and consequential, or merely accidental. We shall be interested in making more careful observations, and wish that our Florida friends especially (for the inquiry came first from Florida) would watch and note likewise. The crow and hawk chasing propensities may be of special interest to the combined apiarist and poultryman.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



It is with sincere regret that I read in Wesley Foster's note the sad misfortune to Mr. D. C. Polhemus. All of one's extracting combs for 2000 colonies of bees is "some loss," and would put the discouraging crimp in the career of most of us. The great loss of wax and labor involved is in itself considerable; but to have one's combs destroyed when the honey season is just at hand is equal to losing a honey crop besides. It was my good fortune to meet Mr. Polhemus and his wife, who spent the night with myself and family last season. He is one of the few very successful beekeepers, and has on his own initiative created a market for his honey that is of very great value to his future. When he has insufficient honey of his own production to supply his trade he goes into the market to get a supply.

BE CAREFUL BEFORE YOU SELECT A BREEDER.

In recent articles there has appeared a suggestion that tested queens were good enough for breeding purposes. It seems to me that in this there might be a pitfall to some beekeepers. I would warn all to refrain from breeding very extensively from a queen that has not had at least a summer's tryout in the honey season. A tested queen might prove to be the equal of any; but there is too much chance in requeening an entire apiary from a single queen of this kind, that she would not prove equal. For requeening an entire apiary, or perhaps several of them, a guaranteed queen from a reliable breeder should be used, and no other kind. A queen-breeder who has kept close record on a queen for a year is able to give you value for your money, and you run very little risk by paying a fancy price for such a queen. The greatest risk is in not being able to keep her laying a sufficient length of time to complete requeening operations before she is superseded, especially after traveling a long distance thru the mails.

DANGEROUS LEGISLATION.

There seems to be a feeling, tho I hope to no very great extent, that no honey from a diseased apiary should be allowed to be placed on the market. Wesley Foster, June 1, is the first to voice that opinion, and there are several in our own state who think the same. It is the belief of the writer that the

amount of good obtained would not be commensurate with the vast amount of harm that would result. If it were a matter of vast importance I might take another view of the situation, but I am of the opinion that there can but little harm come from the sale of honey from diseased apiaries, inasmuch as it is not injurious to the human race when eaten. But such a thought enacted into law might become a vicious matter in the hands of some men, even those who fostered the movement. In the first place we have entirely too many laws on bee-disease control as it is, and the entire lack of the proper kind of laws. In other words, we have a multitude of county, state, and district laws whose enforcement is done largely according to the individual fancy of the interpreter. What we need is a national law that will define the rights of the shipper so definitely that there can be no doubt of its meaning, or the rules laid down in its provisions, this law to supersede all others, and be *the* law of the future. Such a law would place us all on the same level; and if we had bees, queens, or honey to ship we could go at it in an intelligent manner, and with the thought we knew what we were about. With a law such as Mr. Foster recommends there would be a great hardship worked on the producer, for disease might be discovered at the close of the season, and that a man's apiary contained disease, while previous to that time there had been no trace of it visible; yet on the face of the fact his honey would have to be destroyed. The editor, on page 425, shows where such a law might work a hardship even on Mr. Foster's own state. I think it would be another case of whose ox was gored as to the individual leaning toward the law, and it is very probable that there would be a change of sentiment in some cases. But I am not ready to believe with Mr. Foster that such a law is nearer than we think. I am firmly of the opinion that such a law will never be passed unless "gumshoed" to final passage. Neither can I believe that Mr. Foster is anything but sincere in his views on the question; but I am as yet not ready to follow his idea. There is too great an economic waste in sight. [Our views are already given on page 425. We might add that a national law would be effective only on interstate business. It could have no jurisdiction within any one state. We would have to have state foul-brood laws as well.—Ed.]

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York

VALUE OF DRONES.



"I am a beginner in beekeeping, but have read quite a little about apiculture. I note that you and other writers propose to allow each colony only a meager quantity of drone comb so that a greater amount of honey may be stored thru the gathering of a maximum number of workers being reared in all-worker comb except two or three inches square left to comfort the bees along the drone line. Now are you not mistaken here? I cannot believe that nature makes a mistake in providing drones. Are not these drones of value aside from their use for the fertilization of queens?"

Modern beekeeping has taken the bees out of their primitive state, where they were in isolated places, rarely more than one colony in any locality; and with colonies several miles apart there had to be enough drones in each colony to make it an almost absolute certainty that the young queen of this colony would surely find one in the few minutes to one-fourth hour that she was out in the air; otherwise she would be more liable to become the prey of some king-bird or other enemy which might abound in the place where the colony was located. Upon her life the very existence of the colony depends, as more often than otherwise there is no other means left for the continuance of reproduction in the colony. All beekeepers of any experience know what little chance there is for a colony whose queen is lost in her mating-flight, if a queen-cell or young brood is not given by the attentive apiarist.

Under our modern and more successful management these primitive conditions are changed. The colonies being massed or congregated together in large number, it is quite evident that the drones of a few colonies will serve the same purpose that they would have served where one-fourth of the comb covered by one colony was of the drone size of cell. It is, therefore, reasonable to suppose that it is useless to rear such a number of drones in each of the colonies congregated together in an apiary of from 20 to 200 colonies.

I have made several careful experiments by way of massing three or four Langstroth frames quite well filled with drone brood from different colonies, set apart as drone-rearers, in order that these drones might be kept for mating with queens after other inferior drones had been killed off at the end of the honey-flow, and have always

found that the drones from these three or four frames would consume about all of the honey brought in during the late honey-flow, while colonies of the same strength with only an inch or two of drone brood would store a surplus of from 50 to 100 lbs.

Our questioner thinks we are mistaken, but he gives us no proof save that he believes that nature makes no mistake. In answering his question in regard to drones being of value aside from the fertilization of queens, I will ask, "How can they be?" They do not work; they fill themselves with honey from the combs every time they fly from the hive; they are never seen out on the clover or any other bloom, and their rearing decreases the number of workers reared. Are not these facts sufficient to incite any beekeeper to prevent their production in colonies limited only by nature? It seems hardly necessary to theorize on the profit, and the approximate amount saved by their suppression. In a square inch of comb, approximately 55 workers may be reared, while the same space will furnish room for about 36 drones, figuring both sides of the comb. Thus in a square foot of comb where 5000 drones could be reared, we may rear approximately 8000 workers. Would it be unreasonable to say that the same amount of food will rear either brood, since it occupies the same space? And when they have emerged, we have a small swarm of workers instead of a heap of useless, bothersome, voracious feeders that do nothing but loaf, but are sure to come home to eat. After they are reared, to get rid of them drone-traps must be provided. And these are a nuisance to the worker bees and their keeper. Better not rear them at all. If we have taken pains to make sure of a sufficient number in one or two of our best drone-breeding colonies, why go upon some imaginary idea to permit their production in every colony? Try your best to get rid of the drone comb, and you will still find more inferior drones than you wish.

I am sure that every beginner will do well if he removes the largest patches of drone comb in all his hives, replacing the same with worker comb, except in such colonies as are set apart as breeders, as mentioned before. Of late it has seemed to me that the advantage of removing the drone combs and replacing them with worker comb, or foundation, is sufficiently apparent to make the matter a question of very serious consideration among practical beekeepers.

GENERAL CORRESPONDENCE

IS THE ISLE OF WIGHT DISEASE NEW?

BY C. E. BARTHOLOMEW,

Associate Professor of Apiculture, Iowa State College

The beekeeper need not become panic stricken when a new(?) bee disease has been discovered. Most new diseases are simply a new name for something we have always had with us, and the so-called Isle of Wight disease is one of these. This disease has been confused by beekeepers with a great many other common ailments of the honeybee, as the great variety of symptoms demonstrates. This is due to a great extent to our meager knowledge of actual causes.

There are at least two and possibly more diseases distinguishable among the many symptoms ascribed to Isle of Wight disease. Bees suffering from paralysis and those suffering from dysentery are affected by two distinct diseases, both of which may be present at the same time in the same colony, but not necessarily so. There is present, in all bees examined that had died of malignant dysentery, a protozoan parasite that is not nosema, but is a near relative of it. This parasite in all cases was present in large numbers, and infests the digestive tract. In bees dying from the apparent effect of this parasite the alimentary tract was almost destroyed. In fact, it was simply rotten. The nosema is occasionally present in the spore stage in these cases, but it is extremely rare. In bees suffering from paralysis the nosema spores are common, and I have found a protozoan present in the muscles of the honeybee: but whether this is a stage of nosema, which I am inclined to believe it is, or some other parasite, I am not prepared to state. The present status of our knowledge of the life-histories of these parasites is very meager, and I can only predict that it will be a long time and require considerable study before the end is gained.

I feel safe in making the statement that malignant dysentery and paralysis are two distinct diseases, and that the malignant dysentery is caused by a protozoan parasite that is not *Nosema apis*. I call this malignant dysentery to distinguish it from the dysentery caused by long confinement and a heavy consumption of stores, and which is not necessarily fatal if the bees have an opportunity for flight.

The mortality from this dysentery is higher in the spring than any other season of the year, and a great deal of spring dwindling is due to it and not to the quality of the stores or many other of the attributed causes. This disease is at its worst at the beginning of brood-rearing in the spring. If the colony survives the rearing of the first brood and the appearance of the new nectar the disease is checked and may not be again apparent until the following spring. When prolonged periods of wet weather reduce the nectar flow and confine the bees to the hive the disease may make its reappearance to such an extent that the beekeeper may notice it. One reason why this parasite is apparently more virulent in the spring is that the longer life of the wintering bees gives a longer developing period for the parasite, while in the summer the sick bees die in the field while the developing brood make good the losses.

One of the principal symptoms of this disease is the brown liquid dropping, together with a heavy mortality. When examined under a high-power microscope these droppings will be seen to contain myriads of spores of a protozoan parasite.

There is nothing to add to the methods of treatment for this disease but to caution the beekeeper against leaving the daubed frames and honey for the young healthy bees to clean up, and thus become infected with the parasite. Remove all daubed frames. These may be washed and returned if not too much soiled, but do not leave it for the bees to do. All traces of droppings should be washed from the inside and outside of the hive as well as from the frames. Thin sugar syrup or thinned honey fed in outside feeders seems to have some influence in reducing the mortality.

Ames, Iowa.

[The writer of this article is Associate Professor of Apiculture at the Iowa State College located at Ames, Ia. He is, therefore, probably in possession of a complete equipment for making investigations.—Ed.]

NOSEMA VS. ISLE OF WIGHT DISEASE

BY GEO. W. BULLAMORE, F. R. M. S.

Dysentery may occur in normal bees as the result of conditions, or it may occur under normal conditions when the bee has a deranged digestive system. If the bees winter on good food, only a small proportion of the stocks affected with Isle of Wight will show dysentery. The prominence given to this symptom by Zander probably arose from the fact that his observations were first made when heavy losses were occurring in cold wet years. A sickly bee on the unripe or dark honey-dew stores that have to serve at such times would be very much subject to this trouble. Varieties of yeasts occur in dysentery, but I do not think there is one special kind responsible, tho all the cases in one apiary may show large numbers of the same kind. Yeasts, and molds which also cause fermentation, are certain to be present in honey-dews, for instance.

Both Swiss and German observers agree that nosema has no particular symptom except the death of the bees in large numbers. This is our view of Isle of Wight disease.

I would advise caution, therefore, as to harmlessness of nosema. In this country a small percentage of people die of pneumonia. The pneumonia germ is reported to be present in 60 per cent of the population. There are districts in India where the malarial parasite is present in the blood of 100 per cent of the native school children, yet a slight infection would bowl over a European. I have read of a village where all the inhabitants were carriers of the typhoid bacillus. It was the visitor who suffered from the effects of typhoid germs. As to nosema and Isle of Wight disease, I am personally committed to the statement that the Isle of Wight disease is associated with an intracellular parasite *believed to be* the young form of nosema. I have often picked up crawling bees in disease districts and found this young form in the stomach-walls. The life-history of a pathogenic protozoan such as nosema is necessarily conjecture, as we cannot watch the growth and development. We merely find the different stages and piece them together. When any

work of Rennie and Anderson is published I may send you an article on nosema and Isle of Wight disease. There is nothing fresh in what they are saying, apparently—no new facts.

Too much attention is given to nosema spores, I think. The poisons will be excreted by growing stages and not by such a resting form. A bee that gets thru the early stages may well appear normal, altho spore-laden. The suggestion has occurred to me that the difference between endemic and epidemic nosema may be in the arising under certain conditions of an infective *young* form. A few bees could pass them from the "blood" to the salivary glands and infect large numbers with the stomach trouble. When disease developed the blood-infected bees would have disappeared, and proof would be impossible. This suggestion is only one possibility, but I feel sure that I could dodge a lot of trouble if I could dodge nosema.

Albury, Herts, England.

[Altho wintering colonies on unripe honey or honey-dew may be, and often is, the cause of dysenteric trouble, this disorder, we are credibly informed, is more often than not present in cases of Isle of Wight disease when no question of unwholesome stores arises.

The gut content of the bee is normally alkaline; but with nosema infection it becomes acid, and this acid medium is a congenial breeding-ground for yeasts; and these yeasts which are frequently present in enormous numbers are responsible for the dysentery. A more correct term for this disorder would, we think, be diarrhea, as the active agent does not cause any disintegration of the tissues of the gut.

There appears, however, to be at least one true dysentery of bees. Prof. C. E. Bartholomew, of the Iowa State College, has discovered in the fæces of dysenteric bees numerous sporocysts of a protozoan parasite whose life-history he has not yet fully worked out. The tissues of the gut of the infected bee are destroyed by this organism.—Ed.]

BEE PARALYSIS

BY MAJOR SHALLARD

The first we knew here of bee paralysis was what we called Californian trembling disease. The bees got on the ground and could not fly, and their wings trem-

bled. It did not do any particular amount of harm, and we treated it by dashing a half-cup of salt water across the combs. This was about 25 years ago; and some

little time later its character changed, and the bees fell out of the hives and crawled about the ground with swollen bodies. It weakened the hives somewhat, but did not do any serious damage. The following season it attacked the bees on the Hunter River, 60 miles north of Sydney, and acted much the same as the Isle of Wight disease in England. The bees swelled up and tumbled out in heaps until there was a bucket of bees under some hives. It wiped Mr. Mich. Scobie's apiary of 150 hives right out all but 15; but there was a sequel to this, as the next season he bred up from the 15 to 150 again, and took 9 tons of honey. What price that, for good beekeeping!

Now it has assumed another form, or, rather, it has two forms. The bees will hop about the ground in one case, but they suddenly curl up and die in the other. In the former they are a little swollen—not much; but in the latter they are not swollen at all. I had been sitting under a tree having my lunch, when a bee laden with pollen fell on to the paper I was reading. It curled right up as tho it had the cramps, and died almost instantly. I have seen them do the same thing on the road many times, and have wondered if this was not partly the cause of the disappearing disease which we get here sometimes.

You, Mr. Editor, say that the bees get some sort of fungus, possibly with the pollen. Perhaps you are right, and that would account for the fact that one apiary will get it while another two miles away will be quite free. As I mentioned once before in GLEANINGS, I know of places here where

the bees get paralysis every year at certain seasons, while other apiaries only three miles away are healthy.

At the present moment I have one apiary pretty badly affected, while another not two miles away has not a trace. At the same time there is a fair flow of honey at the latter, and plenty of good pollen; whereas at the former there is hardly any honey-flow and hardly any pollen.

I have known this disease for many years, but it is so contradictory that I do not profess to know much about it. We do not pay very much attention to it anyway, as it is seldom that all the hives are affected, altho they once used to be; and if one hive persists in the symptoms the queen is either changed, or sometimes moving to another apiary will effect a cure. As you say, our bees have become largely immune to it.

Glenbrook, N. S. W., Australia.

[The writer of the foregoing is one of the best-known beekeepers in Australia. The reader who goes over these three articles will be able to make his own comparisons and determine whether he has any of the troubles among his own bees.]

By referring to an editorial elsewhere on this subject, it would appear that bee paralysis and Isle of Wight disease are not one and the same disease altho some of the symptoms are similar. The ordinary bee paralysis of the northern states is not serious, and usually does not affect more than one or two colonies. But there has been a peculiar kind of malady that struck apiaries in the Mississippi Valley and the Northwest, and particularly in Oregon that killed a good many bees.—Ed.]

MANY CONDITIONS CONTROL THE DISTANCE BEES FLY

BY J. E. CRANE

P. C. Chadwick, p. 149, Feb. 15, reports that bees in southern California will go from five to seven miles for nectar and do very good business at storing honey, while Mr. Baldwin, of southern Florida, has told us that his bees would not go over a mile for nectar. Both are reliable men. The editor says the topography of the country has much to do with it—bees will fly further in a hilly country than in a level one; also the scent of nectar may be carried by the wind. All of this is true; but they have wind enough in Florida to carry the perfume of flowers a long distance. Doubtless it makes a difference whether the wind is blowing from the source of nectar toward the apiary or in the opposite direction.

Thirty or forty years ago we thought we knew just how far bees would fly. I drew circles around my yards on local maps to show just the territory a yard would cover. We know more about the subject now. Not only does the topography of a section of country and the direction of wind affect the flight of bees, but several other conditions have a bearing. I will first mention climate. The climate of California is dry and bracing; that of Florida is damp and hot. One tends to industry, the other to inactivity. Said a Californian to me in Florida a few years ago, "What kind of climate is this? In California we could walk six or seven miles and just enjoy it; but here in Florida if you walk two miles you are all in."

This explains it exactly. Doubtless bees feel the effect of climate and the indisposition to work as keenly as man; and why should they exert themselves to go a long distance when they have enough in their hives? We little realize how much muscular energy is required to carry a bee thru the air, especially when loaded, until we watch them drop at the entrance of the hive exhausted and panting for breath. It stands to reason, therefore, that bees will not go nearly as far in the climate of Florida as in a different climate, even if other conditions were the same.

Another condition affecting the flight of bees, especially here in the North, is the temperature of the air. I have been surprised to learn within the last few years the distance bees will fly in cool weather as compared with the distance they will fly in warm weather. A few years ago the weather was quite cool during fruit and dandelion bloom, and, as a result, the bees of almost every large apiary were in a starving condition before clover bloomed, while those in the small yards, with half a dozen colonies, had filled their hives and were swarming. This is easily explained. While there were flowers enough in the small area over which bees could fly for a few colonies, there were not enough for a large number. Had the weather been warm enough so bees could have flown as far as they do in July, I believe there would have been but little difference in the condition of large and small apiaries.

Another proof of the short distance bees will fly in cool weather is the barren fruit-trees or cranberry-bogs some distance from where there are bees. This is not so notice-

able when the weather is warm; but if cool we may learn the fact to our sorrow.

Another factor governing the distance bees fly is the strain or race. A friend was telling not long ago how, when he first Italianized his bees, he went two and a half miles from home to a piece of alsike clover to see if any of his Italian bees went that far. To his surprise he found them in great abundance. He said that another beekeeper living only one mile from the field of clover had black bees, yet he found fourteen times as many of his Italian bees to the same number of colonies, by actual count, as he did of the black bees, although his Italian bees were two and a half times as far away. He said, further, his bees had no trouble in getting basswood honey when the trees were two to five miles from home. An inspector is not infrequently surprised at the stories told by old bee-hunters of the distance they have lined bees.

Although there may be no way to prove it, it seems probable that bees do not fly nearly as far in cloudy weather as when the sun is shining, other things being the same. The same is doubtless true of showery weather. Bees do not like to be caught out when it rains; and yet if nectar is abundant they will work freely a short distance, even in the rain, if it is warm.

Thus we see there are many things that control the flight of bees in their search for nectar—the topography of the country, direction of the wind, climate, strain of bees, temperature, weather conditions, and it may be other conditions we have not yet come to recognize. How much the years, as they go by, are adding to our knowledge!

Middlebury, Vt.

HOW CAN I PREVENT SO MANY DRONES?

BY CHARLES E. DUSTMAN

There are three ways by which the number of drones may be restricted. They may be trapped, they may be destroyed before emerging from the cells, or only worker comb may be permitted in the brood-nest, excepting, of course, a few drone-cells which will be scattered thru the hive despite the efforts of the apiarist.

Some have argued that the apiarist is but little hurt by the production of many drones. In this they are much mistaken. It costs much to produce drones, and much to maintain them. To determine the cost of producing drones we must consider the amount of space they occupy, the amount of stores they consume in development, and

the amount of time they receive from attendant bees.

Sealed worker-brood combs are one inch thick; drone-brood combs are $1\frac{1}{4}$ inches thick. In the matter of thickness of comb the square foot of drone brood occupies 25 per cent more space. Worker brood occupies the combs but 21 days, whereas drone-brood occupies it 24 days, or $14\frac{2}{7}$ per cent longer; 125 per cent of space occupied $14\frac{2}{7}$ per cent longer is equal to $142\frac{6}{7}$ per cent of space occupied for the same length of time. This does not take into account the damage done by crowding the adjoining worker comb.

As to the amount of stores required to

produce a square foot of drone brood, it may be considered that it requires the same amount, bulk for bulk, as does worker brood; and that being 25 per cent larger in bulk they will require 25 per cent more stores. But this is not all, for worker larvæ feed for but six days, whereas drone brood feeds for $6\frac{1}{2}$ days, or $8\frac{1}{3}$ per cent longer. If a square foot of drone larvæ consumes 25 per cent more stores for $8\frac{1}{3}$ per cent longer time it consumes $35\frac{5}{12}$ per cent more stores.

The time required from the attendant bees to produce this square foot of drone brood probably corresponds exactly with the amount of stores consumed, which is $35\frac{5}{12}$ per cent more than is required to produce a square foot of worker brood.

To sum it up, it requires $42\frac{6}{7}$ per cent more space, $35\frac{5}{12}$ per cent more stores, and $35\frac{5}{12}$ per cent more time of attendant bees to produce a square foot of drone brood than it costs to produce the same amount of worker brood.

We believe that all drones other than those produced for necessary breeding purposes are entirely worthless. Our square foot of drone brood has yielded us 2304 worthless drones. This same amount of space and time and stores given to the production of worker brood would have produced 3120 workers, even if the space occupied were only $35\frac{5}{12}$ per cent more.

It may be argued that the presence of drones gives the colony a better working spirit; but we cannot believe that this is true until competent observers give it their support.

It is sometimes argued that drones are helpful in producing heat; but this argument will never carry any weight unless it can be shown that, when denied drone comb and provided with worker comb instead, they will refuse to produce an equal bulk of workers.

It is also sometimes argued that man cannot improve on nature, and that bees should be allowed to follow their inclinations in the matter of drone production, for they surely know what is good for them better than we do. This argument is inexcusable. It is strange indeed that a man

will constantly improve his stock and crops by selection and breeding, his fruit by budding, grafting, and pruning, and dispose of his surplus rams and cockerels, and then argue that it is best not to restrict the number of drones because "Nature herself provided them in large numbers, and nature surely knows best." If it is established that it is well to restrict the number of drones, then it only remains to determine the best method of accomplishing this.

We said they may be trapped, destroyed in the cells, or eliminated by supplying only worker comb. Restricting drones by trapping is a makeshift, and is unwise. Trapping saves nothing in the cost of production. It saves only the cost of maintenance. Indeed, it does not save even so much as that, for traps hinder greatly, especially if the colony be populous and the day hot.

Restricting by destroying the brood is probably worse; for after brood is sealed it requires no stores and little attention. But should it be destroyed the bees will promptly fill the cells with other thousands of hungry mouths, and consume another requisition of valuable stores.

Drone brood is capped in $9\frac{1}{2}$ days from the time the egg is laid. It emerges from the cells in 24 days. Now, just for argument's sake, let us say the apiarist who practices restricting by uncapping uncaps his drone brood every ten days. Then, allowing two days for the recleaning of the cells, he has put the bees to the expense of feeding twice as much stores, for they would have to carry two generations of brood entirely thru the food-consuming period, and in addition it would require the services of many more nurse bees than if one generation were allowed to occupy the cells the full 24 days.

We grant a very small portion of drone comb or cells here and there, for bees seem so determined to have a little that it is possible it is best to humor them to this extent. But beyond this we claim that the only method of restriction worthy of practice is the practice of removing from the brood-nest all drone comb, and replacing it with worker comb or foundation.

Des Moines, Iowa.

THE BITTER HONEY FROM BITTERWEED

BY J. L. LEATH

My apiary is located in the suburbs of the city on a hill gradually sloping east and southeast. The early sun warms the hives, and the bees begin to stir early, and I believe they build up better in the spring.

People pass my apiary every day; but it is seldom that a bee tries to sting. Stock come around, and wagons are driven near them, but they seem not to care.

After trying in my yard several breeds



J. L. Leath's apiary located in the outskirts of Corinth, Mississippi.

of bees I have decided on the three-banded Italians. My experience is that the three-banded have more good and fewer bad qualities than any others I have tried. I keep bees for pleasure and profit. I have worked bees for about 25 years, and I enjoy the work very much.

In the accompanying illustration can be seen small hives that hold four regular Langstroth frames. These I use in mating young queens. This is not a first-class honey location, but a good place to rear queens. Our honey-flow is a long-drawn-out one, beginning early in spring, and continu-

ing more or less until autumn. Bees seldom store a large surplus here. The largest from any one source is probably from bitterweed. I have seen them fill their supers and brood-chambers full of this bitter honey, and they mix it with the new honey the next spring, not consuming it all during the winter.

Our main sources of honey are fruit bloom, white clover (yielding for a short time); sweet clover, bitterweed, and aster. We have plenty of natural pollen-producing flowers almost all the season. My best yield this season from one colony was 120 pounds of fine extracted honey.

Corinth, Miss.

MY METHOD OF QUEEN-CELL PRODUCTION

Preparing the Cell-builders

BY W. H. CRAWFORD

Select a strong colony of bees in an eight-frame two-story hive, in a perfectly normal condition, and at a time when the weather is good and the flowers are yielding nectar, so as to encourage and stimulate the bees to such a degree as to produce perfect conditions as nearly as possible. See that the lower story contains eight full combs of

brood with a normal amount of honey and pollen. After making sure that the queen is in the lower story, put a queen-excluder between it and the upper story, and at the same time remove all combs from the upper story.

Three hours before starting cells, take seven combs of brood in all stages of de-

velopment from several different strong colonies, with adhering bees, being sure not to get a queen with them, and put them in the upper story, spacing three combs on each side of the hive normally, putting the seventh one in the center of the space left. This will give just the right space on each side of the center comb for a frame of prepared queen-cells. In less than an hour these spaces will be full of clustered bees, and hence an ideal condition will have been brought about as well as an ideal place for the reception of embryo queen-cells.

The mixing together of bees from different colonies, together with the fact that the brood in the seven combs put above a honey-board is decreasing every moment, produces the superseding impulse upon the bees in that part of the hive, and therefore gives the finishing touch to a perfect condition for the development of as good queen-cells as bees can produce. In my estimation a colony prepared as here described is near perfection. At times I have had 100 per cent of the cells given to such colonies accepted, abundantly fed, and completed; but, as a general rule, when twenty cells are given, about ninety per cent of them are completed. Where more than twenty cells are given at a time a less per cent are accepted; and where less than twenty are given, a greater per cent will be accepted and completed.

These cell-building colonies can be kept in the same ideal condition all thru the season by removing the cells three days after they are given to them; at the same time giving a fresh lot of prepared cells. Two full combs of brood with adhering bees should be given to the upper story once a week, removing the full combs of honey as fast as filled, so that no crowded condition will be noticed by the bees. In putting in empty combs, care should be taken never to put a fresh extracted comb, wet with honey, into the upper story of cell-building colonies; for fresh feed of any kind given in the super of such colonies means destruction to many unsealed cells; and all open cells are neglected for a time sufficient to damage them, while the bees are rushing about in an excited manner, taking care of the newly found sweet.

Every third day the cells are removed from cell-building colony No. 1, the jelly in one of them being used in preparing 20 new cells which are given in the place of the ones removed. If the bees of No. 1 are allowed to finish cells the superseding impulse wanes to some degree every time they do so, and hence the ideal condition is lost; but if they are not allowed to finish any

cells at all, it is an easy matter to keep the superseding disposition up to the maximum degree all thru the season.

By this method seventeen cells are secured from one colony of bees every three days without the loss of a pound of honey from any part of the apiary, and such cells are as good as can be produced by any known plan.

The frames of cells, with adhering bees, should be carefully taken out of cell-building colony No. 1, and placed in colony No. 2, where they are finished. Colony No. 2 is prepared the same as No. 1, except it has only three combs of brood in the upper story in all stages, the remaining four combs being partly filled with honey. It is a simple mathematical problem to find the number of cell-building colonies needed to supply the amount of cells required.

HOW THE CELLS ARE LOCATED.

The best device for holding queen-cells is like a division-board, $\frac{1}{2}$ inch thick by $3\frac{1}{2}$ wide. The bottom edge is dipped several times in melted beeswax so as to form a thick film of wax on it. The cell cups are molded on a cell-stick as per the Doolittle plan, and are fastened to wooden cell-blocks by pressing the base of the cell against one end of the block when taken from the melting wax the last time in forming it, then the cell and the block together are dipped into the melted wax again, thus securely fastening the cell to the block, and forming a film of wax all over the block. Then once more the end of the block is dipped in the wax so as to make a still thicker film of wax on it, making the cell and block ready for use.

The wooden cell-blocks are made of white pine or redwood, $\frac{1}{2}$ inch thick by $\frac{3}{4}$ inch long. There is no need of a cavity in them for the cells.

GRAFTING THE CELLS.

After the cells have been provided with royal jelly, transfer the larvæ 24 hours old with a tiny wooden brush made by chewing the point of a tooth-pick a little. With this kind of transferring-needle quite a bit of jelly can be dipped up with the little larvæ if they have been as abundantly fed as they should be. (I would not breed from a queen whose bees do not float the tiny larvæ in jelly.)

Next press the waxed end of the cell-blocks into the wax on the edge of the cell-board, giving them a little turn with the thumb and fore finger at the time, so as to fasten them securely there. Twenty cells can be put on one cell-board; but it is better to use two cell-boards, putting ten one inch apart centrally on each board, then quickly

put them in the spaces made ready to receive them in cell-building colony No. 1. This puts the cells near the center of the hive, and along the center of the combs as they should be.

The board described above is perfection in the way of a queen-cell frame, having no objectionable features whatever. Last summer I discovered the plan of waxing the edge of the cell-boards and cell-blocks as a means of fastening them together, making a cheaper and more satisfactory fastening

than any I have ever used. There is no danger whatever of cells coming loose if ordinary care is taken in putting them on, especially if the board is allowed to lie in the sun for five minutes just before. A cell-frame of this kind eliminates the objectionable features of having comb built in it, or having bees cluster in it in a way that makes it awkward for the queen-breeder to handle the cells and frame to the best advantage.

Reswell, N. M.

WHITE-CLOVER POLLEN

BY JOHN H. LOVELL

FORM OF THE POLLEN GRAINS.

The pollen grains, when examined under a high magnifying power, are shown to be oblong, cylindrical, rounded at each end, with three longitudinal slits or grooves on the sides, and the bands or spaces between the slits finely roughened with many shallow pits or depressions. A knowledge of the form of the pollen of white clover is very essential in order that it may be recognized with certainty when taken from the pollen-baskets of bees or from the hives; otherwise expressions of opinion become largely if not wholly guesswork. The color of the pollen in the anthers is yellow.

THE COLLECTION OF WHITE-CLOVER POLLEN BY BEES.

There are five petals. The upper petal, called the standard, is much the largest; the two lower partly cohere to form a sac called from its form a carina, or keel; the two lateral petals, called the alæ or wings, are attached to the keel, and act as levers to depress it. The stamens and pistil are completely enclosed in the keel, and ordinarily are not visible. A bee cannot collect pollen from white clover as it does from a rose, because there is none in sight, and it is not directly accessible. Bees never visit the flowers for the purpose of gathering pollen only, and in all my observations I have never seen a bee trying to obtain the pollen.

There are ten anthers, each of which produces a small amount of pollen; but it is yellow, not brown, as stated by Dr. Miller. The filaments (stems of the stamens) unite to form a tube, at the bottom of which the nectar is secreted. The superior stamen is, however, free, leaving two small openings at the base of the staminal tube thru which a bee may insert its tongue to obtain the nectar. It is manifest at a glance that the individual florets of a white-clover flower-

cluster are far too small to hold a honeybee. The bee clings with its legs to several flowers, and only its head rests on the flower from which it is sucking nectar. When a bee pushes its head beneath the standard, the keel and wings are forced downward, the anthers and stigma emerge, and, if the former have opened, a little pollen is deposited on the under or inner side of the head. In a bee before me the whole under side of its head is covered with a layer of moist pollen. If a pointed leadpencil is thrust into a mature flower, when it is withdrawn a little mass of pollen will be found on the under side. As soon as the bee moves to another flower, the elastic petals cause the anthers to return again within the keel. The collection of pollen is, therefore, an incidental result over which the bee has no control. While it is visiting white-clover flowers, more or less pollen is necessarily rubbed on the under side of the head; but a part of it is again rubbed off on the stigmas of the flowers subsequently visited, effecting cross-pollination, for the stigma stands slightly in advance of the anthers. A part of this pollen may be also transferred to the pollen-baskets, where it appears as little brown balls varying in size from a shot to an almost inappreciable amount. On many bees at work on white clover I could see no trace of pollen in the pollen-baskets, neither could I see any pollen on the thighs of many bees coming into the hive.

Several of these little brown balls were removed from bees captured on the flowers of white clover; the mass was comminuted, and portions of it examined with a high magnifying power. The form and structure of the grains, as described above, showed at once that it was white-clover pollen, altho it was slightly modified by the moisture. The little balls of pollen appear brown instead of yellow, the color of the pollen in the

anthers, because they are composed of a moist compact mass of grains which have been slowly collected and manipulated by the bees' legs.

WHITE-CLOVER POLLEN IN THE HIVES.

The white-clover honey-flow is now at its full height here, and the bees are so busy that I can stand by the side of the hive entrance and watch the incoming and outgoing bees without being attacked. The season has been a very wet one, and never before within memory have the white-clover blossoms been so abundant in the fields and along the roadsides. Here and there masses of white and red clover are mingled with purple vetch, and vie with the flower-gardens in attractiveness. On many of the home-coming bees I can see no pollen, while others bear little brown balls, evidently composed of white-clover pollen.

Three hives were opened, and the frames examined for pollen. In none of them was there a large quantity of pollen; indeed, with every desire to be perfectly fair I should say that they contained a small amount of pollen. From two of the frames of one of these hives I took samples of brown pollen which apparently might be from white clover. To my surprise the compound microscope showed neither of the

samples to consist of white-clover pollen, for the grains were round or globular, with a roughened surface. After the pollen has been packed in the frames, no matter what its source, it seems very generally to have a dark-brown appearance.

Compared with its value as a honey-plant, white clover is of little importance for pollen. The pollen cannot be gathered directly, and occurs in small quantities in individual flowers. Much that is rubbed off on the under side of a bee's head is again deposited on the stigmas of flowers visited later. In most localities, I believe that bees will be found to collect a comparatively small amount. But sometimes great results may come from small causes, as when great cliffs are sculptured by grains of sand blown against them thru the ages. Where white clover is very abundant, and its bloom whitens great areas, as has been pictured several times in GLEANINGS, and the flow lasts for a long time, perhaps the total amount of pollen brought in may be large; but it is exceedingly small compared with the quantity of nectar gathered. Even in these cases the pollen should be examined under the microscope before a conclusion is drawn.

Waldoboro, Me.

THE PAST SEASON IN NEW ZEALAND

BY E. G. WARD

The reader should remember that the seasons in New Zealand are just the opposite from ours—their summer coming during our winter.—ED.

The season of 1915—1916 in New Zealand was one of the most remarkable on record. Reports from the North Island indicate that the output has been rather below the average. The spring was cold, wet, and boisterous; and to keep the bees alive, feeding had to be resorted to as late as the middle of November in some districts.

The southernmost districts of the South Island, on the contrary, enjoyed one of the finest seasons on record for all agricultural pursuits. The beekeepers in most cases had splendid returns, and a late flow from cat-sear and thistles obviated any necessity of feeding for winter stores.

In Canterbury and North Otago (the central districts of the Dominion) the season was the worst ever experienced. The season of 1914—1915 was bad enough; but the one just ended was still worse. Many colonies died during the summer on account of the drouth. One man had only 60 left out of 300. Many artesian wells which had never been known to fail previously went dry, and cattle gave only about half their

usual quantity of milk. There was a severe frost on the morning of Nov. 22, which cut down clover just as it began to yield, and another on Dec. 30. Dec. 15 was the hottest day in eight years, and the following day nearly as bad. Very little extracting was done; and if feeding was neglected there will be a big percentage of empty hives next spring.

The rainfall for the last three years has been diminishing, and was only about half the normal for the year 1915.

Three successive dry winters brought matters to a climax, as the following figures for Christchurch (Canterbury Province) during recent years will show:

Year	Inches	Year	Inches
1902	28.780	1909	32.282
1903	18.998	1910	25.181
1904	33.351	1911	29.253
1905	28.440	1912	27.284
1906	29.496	1913	27.284
1907	19.508	1914	20.380
1908	25.417	1915	15.694

The rainfall during the last 6 months of 1915 was 6.015 inches. For

1911	15.633	1914	7.225
1912	12.697	1915	6.915
1913	15.505		

In contrast to the above, and to show that we have rain in some parts of New Zealand, the following figures for the town of Hokitika (on the west coast) may be of interest.

In 1915 rain fell on 220 days, totaling 134.05 inches. This is not unusual, as the following figures will show.

The fall in 1908 was 110.48 inches.

1909	121.06	1913	101.18
1910	132.69	1914	112.32
1911	104.89	1915	134.05
1912	115.62		

The heaviest rainfall on record for Hokitika was in 1878, when 154.44 inches was recorded; the lightest was in 1869, when there was *only* 88.21.

I am not aware that any bees are kept there; but if so, I should imagine they should never leave their umbrellas at home.

Christchurch, N. Z., May 9, 1916.

REMOVING A COLONY FROM AN AUSTRALIAN GUM-TREE

BY E. B. MACPHERSON.

Out in the "bush" one lovely day I found bees going in and out of a gum-tree. The owner dared me to get the bees and combs into a hive. I did not like the idea of cutting down such a fine old tree, so I borrowed a ladder that was just about long enough to enable me to reach the bees.

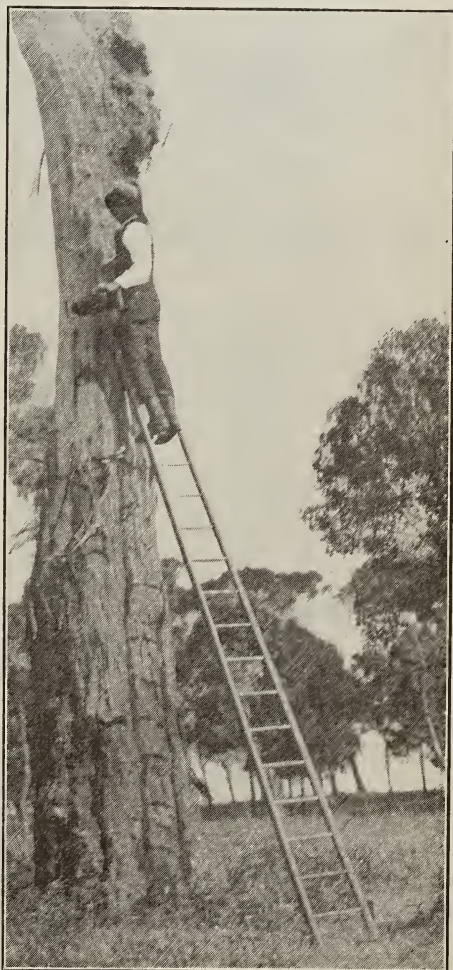
With a small ax I cut a hole where the bees were going in and out large enough for me to dig out the combs of brood. By the time I had the hole cut the bees were frightened enough to desert the brood and honey, hanging in a swarm above the combs between some rotten wood inside the tree.

I drew out the brood-combs one by one and let them fall into the tall grass and ferns below which broke the fall nicely. When all the combs were out I went down the ladder, fixed them into shallow frames, tying them in with strings to keep them in position. I thought I could get the bees out by carrying them down in handfuls, but could not get the queen in that way, and it was rather slow work anyhow, as most of them would keep flying back before I could get up again for another handful.

I had no smoker with me so I took a piece of old rotten wood from the hollow of the tree, made a fire on the ground in order to light the rotten wood, then carried it up where the bees were. They soon found they could not live with so much smoke, so they came out in a swarm and settled in the ferns below. I moved the hive over to them and every bee went in. The colony is doing well now.

Port Fairy, Vic., Aus.

[Nothing like succeeding under adverse circumstances! How many beekeepers would tackle a proposition like this, working on the "tip top" of a ladder and without a smoker? Our friend is not one to give up at the first obstacle that presents itself.—ED.]



I tried putting the transferred combs in the hollow, thinking the bees would settle on them, but the plan did not work.



Whole valleys in eastern Tennessee and in North Carolina were submerged in the flood which destroyed thousands of colonies of bees.

TERRIBLE FLOOD IN SOUTHEASTERN UNITED STATES

BY L. E. WEBB

The terrific flood which has passed over North Carolina and eastern Tennessee has dealt a great blow to the bee industry. Every stream in western North Carolina was swollen to a width of forty to seventy-five feet, sweeping the valleys bare of houses, barns, crops, bees—everything.

Coming as it did at the beginning of the finest sourwood honey-flow in many years the flood cut off all chance of a late surplus from this source. The prospects were fine for three to five supers per colony when the crop was rained out and the bee business in the fertile valleys swept from existence.

The bees belonging to Farm Demonstrator Perkins, of Burke County, were drowned. The hives remained on their stands altho

covered with water. There was no way to save them, as Mr. Perkins' people were marooned in the second floor of their home for two days, unable to get to the hills. Mr. Perkins is an enthusiastic beeman as well as farm demonstrator. He has been in close touch with the government bee experts, and was giving the farmers some valuable points.

My apiary is situated in town far above the flooded area. The loss of the sourwood crop is serious, altho most colonies had made from one to two supers from the first bloom. I feel thankful for a strong apiary in a district where the business has suffered such great loss. Thousands of colonies have been swept away.

Morganton, N. C., July 21.

HEAVY LOSSES FROM THE FLOOD IN FLORIDA

BY J. J. WILDER

For thirty days it has rained almost continuously. Today, July 25, the clouds are broken a little, and the sun shines once more.

The great flood which came down the streams, spreading out wide over the country, sweeping down everything in its path,

has done much damage to beekeepers, and to all who happened to be in its path. They were safe from all previous floods; but this one, being many feet higher than the former record, swept hundreds of colonies of bees on with it as well as all the equipment. This was especially true along the great

Apalachicola River and its tributaries. This region is the heart of the great tupelo-gum belt from which thousands of barrels of this fine honey are shipped each season. Some beekeepers sustained a total loss of both bees and equipment, while many suffered partial losses. All told, thousands of dollars' damage have been done to the industry from which we can perhaps never fully recover.

I have not yet learned the names of all beekeepers who were heavy losers. Messrs. Tucker, Freeman, Lanier, Edwards, Aldermann, and Humes are reported among those

who lost heavily. I shall make a further report later on.

I lost only one apiary which I supposed was several feet above the high-water mark. We could not reach it in time to save it; but when the water goes down we hope to recover a part of the equipment, especially the supers and hives. However, as all of the combs were full of brood and honey this will be a complete loss.

One very fortunate feature is that most of the honey had been shipped out before the flood came. Otherwise the loss would have been much heavier.

Cordele, Ga.

SOME MISHAPS AND BLUNDERS OF LAST SEASON

BY J. L. BYER

Fire is a good servant, but a bad master. This proverb is familiar to all, but never so fully realized as when the time comes that we have actual experience with this dread element. Our apiaries are not pretty to look at, and in many ways our management is rather rough and slipshod, I am afraid, as compared with some of our very careful men; but one thing I have always been careful of is to warn all working in the yards, and to try to show by example as well, the necessity of being very careful to take no chances so far as danger from fire is concerned.

Up to September, 1915, we never had the slightest accident with smokers in any way, and in no other way did we have any experiences with fire where it was not wanted. Working at the home yard in September my son and I were going rapidly thru some 90 colonies taking out filled or partially filled combs of buckwheat honey. The season had been so poor that no filled supers were in evidence. We started in the morning in the northwest corner of the yard, and along toward noon we saw that, by stopping extracting and both taking in combs, all hives could be cleared before dinner, and then Edwin could extract the rest in the afternoon while I went to another apiary to do some necessary work. We finished in the southwest corner of the apiary, and left the yard exactly at 12 o'clock, going to the house for dinner, a walk of about 40 rods. Edwin left our place promptly at 1, and went up to the apiary, intending to finish the extracting. About the time he got there our telephone rang furiously; and on answering the same I was told to come at once as the beeyard was on fire. The bees are on our old homestead, while we now live a short distance from the old place. Needless

to say, I covered the distance from home to the apiary in record time; but I found on arrival that Edwin and the farmer on the place had isolated the fire to those hives burning when they arrived there after dinner. My! what a fire eight large hives filled with combs, bees, and honey do make! In some way that will never be explained, a spark from the smoker, we suppose, had ignited shavings or something in one of the packed hives, and the fire had, no doubt, been about ready to go nicely when we left the yard. The eight hives were alongside of one another in the southwest corner of the yard where we finished taking off the honey before dinner, and that explains how we left the yard without noticing the trouble; but it does not explain how we happened to do the mischief. Both of us had used the smoker by turns, so neither one could blame the other. That was one fortunate factor in the situation. It was a sorry sight indeed to see the bees of the eight powerful colonies going up in smoke; but I was glad that the fire was in the south corner of the yard instead of the north, as a strong north wind was blowing at the time. The colonies were nearly all heavy enough for winter, as they were of the Quinby dimensions. In addition they had most of the super combs on, as this particular lot of colonies had very little buckwheat honey in supers, and consequently the combs were not taken off.

Naturally we both felt like reproaching ourselves for carelessness in some way; but as we had taken all precautions, and used the smoker as at other times, we did not see how the accident could have been avoided. For fuel we were using chips from a wood-yard, our favorite variety for steady work. Years ago I used to put a handful of green grass on top of fuel when refilling; but of

late we have not done so because of the trouble caused by the juices from the grass gumming things up so. Possibly after this experience we may go back to the old practice. While the fire had the effect of making me doubly careful during the rest of the season in handling the smoker, it also had the disagreeable effect of causing me to worry when leaving an outyard after doing work there. No matter what pains I had taken, when leaving the thought would come to my mind, "What if a fire should start here where there is no one near the place?" If it did I guess they would simply have to burn; for after seeing how fire goes so rapidly thru hives, I am convinced that if a fire was started and let go it would clean out an entire apiary, even if hives were quite a long way apart. The only thing to do, no doubt, is to take all due precautions; and, in the absence of any system of insurance for bees that I know of, just trust to luck and stop worrying.

DON'T PUT YOUR NOSE INTO OTHER PEOPLE'S BUSINESS.

The apiary at Altona is situated in an orchard, a rail fence separating the yard from the rest of the ground, occupied by apple-trees. The bees at this place are wintered in rough cases, some two in a case and others singly. When packing them early in November I left one colony at one side of the yard, calculating to carry it about 20 feet to another place to go in with a colony alone on a stand that had a two-hive case. About the latter end of the month I went out to the yard to do this work after being away from there for two weeks or more. I might say that the farmer on whose place the bees are is very careful; but being busy he had not been in the beeyard for some time. Arriving there and going into the yard my first thought was that there had been an earthquake in the vicinity. About half a dozen of the cases for two hives were shoved off the stands, and three of the single-hive cases were actually turned upside down. The single hive left to be moved was the worst sufferer. It had a loose bottom and loose frames, and it was turned upside down, and the combs jammed together more or less, the bottom being off the hive and the bees exposed to the weather, which was below freezing at the time, and had been so for three or four days. First of all I righted the cases that were turned upside down, and then went for the smoker to do the best I could with the wreck of the colony in the single hive. The case was all ready, and I turned the hive aright, hastily arranging the combs as best I could, during which operation the bees

flew out more or less. I noticed that many were crushed. The hive was then placed in the packing-case with the expectation that they would die anyway; but I thought I would give them a chance to end up in a half-decent way. Jan. 25 I was at the yard and they appeared all right, much to my surprise; but I thought the queen might have been killed. The packed cases when righted appeared to be little the worse, in so far as the bees were concerned. The clusters were quiet, and the combs had not been loosened at all—score one for narrow top-bars in a locality where propolis is abundant.

Now as to the cause of all this trouble. Investigation showed that a long-snouted old sow had broken a rail and got into the apiary. The pigs had free access to the other half of the orchard to pick up fallen apples after picking had been done. Some apples had rolled under the packing-cases; and in order to get at them she had put her nose under and given the hives a hoist. That explains the damage but does not help matters very much. In this case, again, it was just another thing that *might have been* avoided, but under ordinary circumstances is likely to happen once in a while in running out-apiaries.

"THEY" SAID SO—AND THEY WERE RIGHT.

Years ago I read that boiled honey would kill bees if given them for winter stores. Repeatedly I have told others this same thing because some one had told me; but I never had any actual experience in the matter. Last September when starting to feed bees at home yard I came across about 40 pounds of honey I had taken from cappings the winter before. In the spring I had diluted some of this with water and boiled it as a precaution before feeding a few needy colonies in May. I never fed stuff that was better for brood-rearing than this boiled honey, no doubt with a lot of pollen in it. Examining the colonies so as to find the amount of feeding to do, I came across a Danzenbaker colony that had been run for extracted honey; and when supers were off the colony was almost destitute of honey. Now, here was a good chance surely to find out *for sure* whether boiled honey would kill bees if given them to winter on. In a foolhardy moment I placed a large Miller feeder on this hive and gave the bees all they would take of this boiled mixture. About Christmas I was in the yard and noticed about a pint of dead bees dragged out in front of this hive while not another colony of the 80 was in a like condition. I raked them away and listened, and there were live bees in the hive yet; but I was

beginning to think that the text-books were all right. Jan. 25 was quite mild, and a few bees were flying at most of the hives; but I noticed the boiled-honey colony was very quiet, with no bees dead or alive around the entrance. A tap on the hive brought no response, and so, sure enough, they were gone. Taking off the packing I found all the bees of this strong colony were dead, and lying all over the bottom of the hive. It did not look like an ordinary case of dysentery, but the bees' bodies were distended a great deal, and the cappings

had been opened all over the combs just as tho the poor things were trying to get better food than was available. I do not know how long they had been dead, but it looked as tho this strong colony without a flight had not been able to live more than three months at the most on the only diet available. Yes, I am now fully convinced that boiled honey will kill bees in the winter. If *you* do not believe it, try for yourself, and don't risk more than one colony in the experiment.

Markham, Ont., Can.

AS GLIMPSED THRU THE CAMERA

Some Experiments with Portable Extracting Outfits

BY H. H. ROOT

In former years we have nearly always extracted all of our honey at the home yard in a convenient extracting-room, hauling in the combs from our six or seven yards around Medina. This year, however, our extracting-room was being used for other purposes; and while we had another place that we could have used we decided to assemble a portable outfit that we could haul from yard to yard. At most of the yards we have small buildings in which to put the outfit; but at one of the yards, a new one, there was no building. As honey was coming in rapidly, however, we decided to ex-

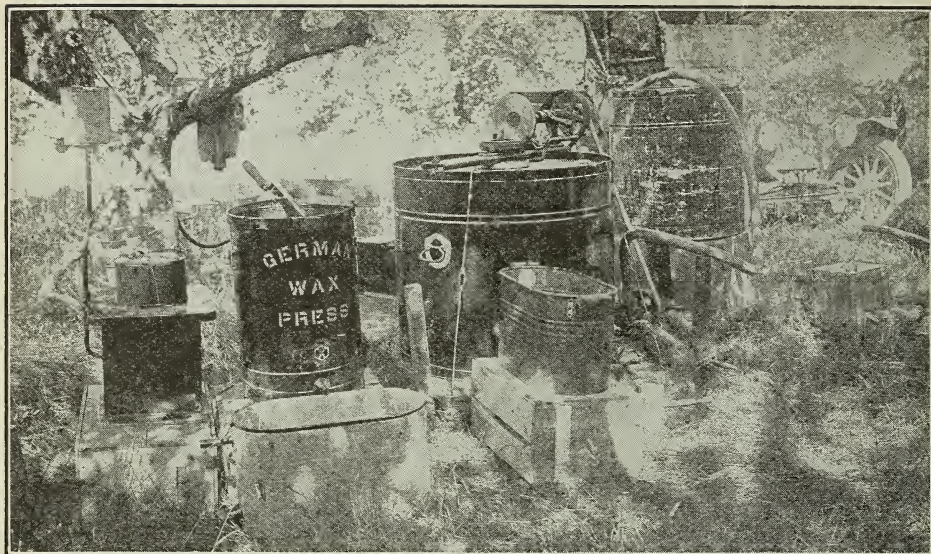
tract right out of doors in an orchard, knowing that the bees would not bother very much.

Extracting out of doors is ordinarily bad practice, even during a honey-flow, for in most localities the weather cannot be relied upon absolutely, and a sudden shower is not particularly good for an extracting-outfit. Furthermore, conditions of the weather or atmosphere may change enough to stop the honey-flow, and then it does not take long for the bees to discover what has been going on right under their noses.

With a portable outfit, especially a power



The platform with extractor, engine, tank, wheelbarrow, and the whole outfit, in fact, loaded on the truck.

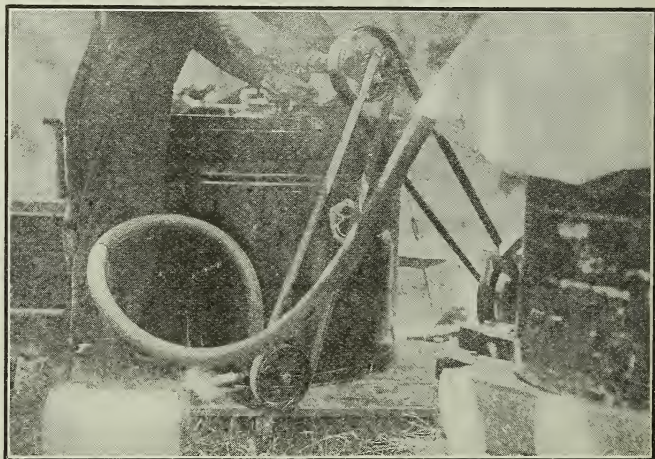


A few minutes later. Platform slid off on the ground, staked down, engine bolted in place and all ready to extract.

outfit, much time is usually lost in bolting the apparatus down to the floor. It takes time to line up belts and make everything secure so that it runs just right. If one uses a screened wagon the outfit, of course, is left on the wagon all the time, and no time is lost; but if the outfit is put inside of buildings and moved from one yard to another it takes a good deal of expensive time to get it set up ready for work.

Our truck body is just 44 inches wide. We built a stout floor, or platform, just 43 inches wide, long enough to hold a six-frame power extractor with engine and pump. Everything was marked so that it took only about fifteen minutes after reaching the yard to get the platform inside the building and the outfit set up. The pump, of course, does not need to be removed ordinarily, altho it can be quickly unbolted from its base if necessary. It is a little inconvenient to have to step up five inches on to this platform; but when one becomes accustomed to it, it is really no handicap.

This year, for the first time, we used a hose to convey the honey from the pump to the tank. Heretofore we have always used a galvanized pipe. A hose is a little more convenient for a portable outfit, for it may be quickly disconnected and coiled up inside the extractor so that there is no drip nor lost time in draining out pipes. If the honey is to be elevated only four or five feet, a hose of small diameter may be used; but it is much better, in order to avoid friction, to use a hose the full diameter of the



Large hose carrying the honey from the pump to the tank. A hose is all right, but costs too much.

exhaust port of the pump. Even with the $\frac{3}{4}$ -inch pump the exhaust port is for a one-inch pipe, and a hose large enough to slip over a one-inch pipe is pretty expensive—so expensive, in fact, that it seems to me that a galvanized pipe is more practical. The pipe, moreover, will last forever, while the hose, unless very carefully handled, will deteriorate rapidly.

This year, for the first time, we tried uncapping into a wax-press, intending to press the honey out of the cappings when the basket was full, then set that one away to be melted up later, an empty basket meanwhile being put in the press.



Uncapping into a wax-press. We made the mistake of not laying a cloth on the cappings under the plunger when we applied the pressure, and consequently the plunger stuck fast.



A strong colony with three to five supers is "some colony." It is bad practice to confine the bees merely to the brood-chamber when the supers are taken off. Empty combs should be provided at once, and if the supers are freed from bees by means of a bee-escape, a super of empty combs should be placed under the escape unless the honey-flow is entirely over.

The plan works very well for one uncapper; but we found that it is absolutely necessary to have the cappings in a sack or else to put a piece of cheese-cloth or other soft material under the plunger of the press, otherwise it is impossible to remove the

plunger after the pressure is applied. The cappings are forced into the perforations by the pressure, most effectually locking plunger, cappings, and perforated basket together in one solid mass.

NURSE BEES AS THE CAUSE OF SWARMING

BY WILLIAM BEUCUS

I was surprised indeed to read in Mr. Chalon Fowls' article, July 15, 1915, the following words: "A natural swarm is made up of bees old enough to fly; but a shaken swarm consists of bees of all ages—nurse bees, cell-builders, all sorts." In this locality, bees of all ages join the swarm, excepting only those weak downy things that have not been out of their cells more than a few minutes, or, at the most, a few hours. And even these may be seen in considerable numbers crawling about in the grass. The only reason they did not join the swarm was because they could not fly. The nurse bees and cell-builders can fly, and they join the swarm in large numbers. What is the function or what are the functions of the clouds of young bees which fly at the entrances and fill the air during the brightest hours of sunshiny days? The functions of those bees are nursing, cell-building, comb-building, and evaporation of honey. These bees do not go to the fields; but when a swarm issues they join in the exodus. If the presence of too many nurse bees in proportion to the amount of unsealed brood is the cause of cell-building, queen-cells should invariably appear shortly after a prime swarm is hived.

The theory that living things lower than man are merely automata is still entertained by the majority of human beings, altho it should long ago have been discarded. It seems to be assumed by many beekeepers that bees do not deliberately build queen-cells, but that they build them only because there is in the stomachs of nurse bees an accumulation of larval food. According to this theory, bees are only machines. They do not consciously determine to build queen-cells, but merely proceed to do so mechanically. This seems to be the view held by Mr. Fowls. To me, this seems entirely wrong.

All higher forms of life, including bees, associate ideas—they think. There is no difference in kind between the mind of a Shakespeare and that of a newsboy—it is only a difference, and there is no difference in kind between the mind of man and that of a bee—it is still one of degree. How

could it be otherwise? In all living things, life is made up of internal changes which occur in answer to external changes. That these internal changes may be properly adjusted to the ever varying conditions outside of the body, it is necessary that the internal changes be in some way directed. That direction is merely an act of mind—a deliberate act. The mind of a man moves in a large circle, and directs the adjustment to numerous involved conditions. The mind of a bee moves in a small circle, and directs the adjustment to less numerous and less involved conditions.

It is quite remarkable to me that even the most careless observer can go thru a single season without noticing many proofs that bees are guided by intelligence, and are not merely the creatures of instinct—automatism. Only yesterday I observed a colony the bees of which were working but were not carrying in pollen, while the colony two inches to the left was carrying in immense loads. I immediately concluded that the colony first mentioned was queenless and broodless, and that the bees were not carrying in pollen because they were aware that it was not needed. An examination revealed the queenless and broodless condition expected.*

If the building of queen-cells and absconding, spoken of by Mr. Fowls, were due to the presence, in the nurse bees, of an oversupply of larval food, how could we ever manage to get rid of foul brood—particularly when shaking twice? In this case every bee goes with the swarm. We should naturally expect, from the immense overdose of larval food present, a large batch of queen-cells started, and then desertion.

Here is what happens in this locality when the shaken-swarm plan is practiced: If shaken on to starters, almost certain absconding; if shaken on to full sheets, very much less absconding; if shaken on to a set of clean, sweet-smelling worker combs, no absconding whatever. If absconding, in either artificial or natural swarming, is due

* Queenless and broodless bees *do* bring in pollen, however, and sometimes the combs are even "pollen-clogged."—ED.

to the presence of too much larval food in the stomachs of nurse bees, there would necessarily have to be desertion with the accompanying building of queen-cells, no matter if the swarm were hived or shaken on to starters, full sheets, or full combs. The statement that too much larval food in nurse bees is the cause of queen-cell construction, and therefore of absconding or swarming, is not a full truth but an adumbration of the truth. It is a minor truth forming part of a major truth. This major truth is that, whenever there is either swarming or that which some prefer to distinguish as absconding, there is a restriction of function. In shaking or hiving a swarm on to starters, the functions of fielders of nurse bees and queen are all restricted. In shaking on to full sheets, the restriction of function is relatively short. In shaking on to full combs, the restriction is too brief to be a serious obstruction to the immediate performance of the work of life.

Since coming to the conclusion that restriction of function is the cause of swarming, I have got into the habit of asking myself, after treating colonies, "Have I removed every obstacle to the performance of function? Is there anything which stands in the way of raising brood and storing

honey?" At first I thought that merely giving a full set of combs was all that was necessary. Here are some of the minor conditions which, later, were observed as occasional causes in the restriction of functions: A new comb which had been partly drawn out in a top story the year before, and then, in the fall, had been more or less discolored by deposits of propolis; a new comb with very deep cells; moldy combs; extracting-combs which had been uncapped with the knife the year before. Some queens will refuse to lay in combs like the above, and some bees will refuse to prepare them properly. When a comb is uncapped, the mouths of the cells are hexagonal; but the mouths of cells ready for the queen are round. Several cases have come to my notice where the queens refused to lay in such combs, and where the workers refused to remodel the mouths of the cells. In all of the above cases, the effect was the same as tho dummies had been inserted. There was a restriction of egg-laying and consequent swarming.

Failing to observe these occasional minor causes, it is not at all hard to convince oneself that giving plenty of room will fail to prevent swarming.

Cadott, Wis.

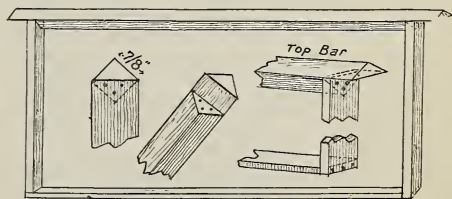
STRAIGHT COMBS WITHOUT FOUNDATION

BY H. H. KOLLOSTER

I indorse Mr. E. E. Colien's article on page 279, April 1, in regard to home-made hives. It is about time for some one to defend the principle of home-made hives. It is a common thing for our best beemen to advise against home-made hives; and the average uninformed beekeeper, unable to buy factory-made hives, stays in the old rut and keeps his bees in an old box, thinking that there is something mysterious about a modern hive. This is a mistake. Factory-made hives are improperly made for all except the professional beekeeper. I can use them if I can afford to buy foundation; but if I cannot, then they are a nuisance, unless all the frames are filled with drawn comb.

I make my own hives. If I have no foundation, and a swarm is in the trees, I just take my home-made hive, fill it with empty frames, and put my swarm into it and let the bees go to work. If I don't see them again for two or three weeks I know that I have straight movable combs. I do not say that they are perfect, for it takes a good beemau with lots of experience to get good perfect combs; but in my home-

made hives and frames the combs are straight and the comb is built in the center of the frame. This cannot be done with the factory hives, for they are made so that foundation must be used.



The construction of my frame is an old idea. A $\frac{7}{8}$ -square bar is used, set into the hive, corner down. The ends are cut out on the bottom side to the center of the bar, and the side pieces are nailed on to the shoulder thus formed. The ends of the bar rest in the rabbet in the usual manner. I use $\frac{7}{8}$ square, but I plane down the two sides and top, as that size is a little too thick; but this size is kept in stock at the lumber yards, therefore is handier to get.

Foundation may be used, and the frames

should always be wired. If I use foundation, I lay it on the wires and press the edge of the foundation fast to the bar so that it centers at the corner, then run a hot soldering-iron over it. So fastened, the sheet never comes loose. If I have no foundation I just fill a hive with empty frames and put in the bees. Spacing is the main point to watch in that case; but should they run off the track I straighten them out a bit and the bees do the rest. Bees always

fasten their comb to the corner of a bar, no matter whether the bar is with the flat surface down or with the corner down.

Thirty years ago I found this bar in use in Ezra Catlett's apiary at Goleta, Cal. Later I found all the other apiaries thereabout used the same kind of frame, so I concluded that all frames were made that way until I saw the factory-made frame. I then discovered why foundation is not only necessary but indispensable.

Palatka, Fla.

REQUEENING AFTER TREATING BEE DISEASES

BY JOHN L. BYARD

My yard being one of the first in Massachusetts to be condemned and quarantined for American foul brood, together with all others in the town of Southboro, it gave me a chance to become early familiar with the disease. After treating my yard I assisted in treating those of my neighbors.

Before inspection in July I had requeened several of my colonies in June. My yard was quarantined, promptly treated, and then I requeened the rest of the colonies the last of August. Those colonies requeened in August far outstripped the others, wintered in perfect condition, and gave a good crop the following season. Those requeened in June before treatment barely pulled thru the winter, and in two colonies the following season I found slight evidence of American foul brood.

In comparison, those colonies in the town of Southboro, near my yard, but which were treated in the usual way without requeening the following year in nearly all instances showed disease. I cannot say that at that time I considered requeening as an essential part of the process of treatment; but with years of experience, both as a beekeeper and as an inspector I am now aware of its importance in combatting American foul brood. I am not prepared to say that the queen transmits the disease; but it is reasonable to presume in egg-laying she has thrust

her abdomen into thousands of cells containing the scales of foul brood. It is beyond me to say that in so doing she is able to transfer the disease organisms upon her abdomen. Yet there are far more significant meanings to the procedure.

First, the presence of infection at once condemns, in my mind, the worth of the queen heading that colony, especially if the disease seems to have taken a firm grip.

Second, from experience, as is shown above, the shaking treatment does not appear to promote the efficiency of the queen. On the contrary, be it the abrupt stoppage of egg-laying, the rough handling in the shaking process, or the confinement, or whatnot, nearly all queens appear to be impaired, lose their prolificness, become "slow to build up," following the shaking treatment.

Third, on general principles new vigor may be induced in a colony by introducing a strong young queen.

Fourth, while there may be some uncertainty as to the transmissibility of the organisms of American foul brood, either in the egg or in the depositing of the egg, the facts of experience show that reoccurrence of this disease, after a most painstaking method of treatment as usually recommended, is accompanied by the old queen from the formerly diseased colony.

SWARM PREVENTION IN COMB-HONEY APIARIES

BY C. F. BENDER

I have run two outyards for comb honey for eight years, and expect to continue. In April the bees which have been wintered at home in the cellar are returned to the outyards. The main reason for returning them so early is to catch the honey from dande-

lion and fruit bloom, which helps to build up the colonies for the clover flow. Another reason is that the hives are less populous at this time, so there is less danger of smothering bees in moving.

The only difficulty in running out-apiaries

for comb honey is the prevention of swarming. All queens are clipped at the beginning of the season. When the flow from clover begins, we go thru all colonies every ten days, destroying queen-cells wherever they are started. A record is kept on the hive-cover, and when cells are started the second time in any hive they are destroyed and the queen removed also. Ten days later the queen-cells are destroyed again and a young queen is given in a candied cage.

I have never succeeded in entirely preventing swarms; but by careful work they may be reduced to about two per cent. As I do not always do my work carefully, about five per cent swarm and get away. A part of the loss is caused by taking chances, when the few swarms saved would not pay for the labor of going thru every hive. A part of it also comes from the natural contrariness of some bees. Some colonies will supersede their queen and swarm earlier than I expected, tho I aim to prevent this by having young queens in all the hives at the outyards. Some colonies may swarm at the end of the flow, but the loss is then small, and is, perhaps, balanced by the young queen, which is reared free of charge.

Twice I have had a colony swarm without a sign of queen, queen-cell, or brood in the hive, as far as the closest search could discover. They had been held back, when they were determined to swarm, by removing the queen, killing all queen-cells nine days later, and again killing cells on the fourteenth day. They swarmed promptly when clipped queens were given them, suked for a week after the queens were taken away, then

swarmed without queens. My guess is that they had laying workers, tho no brood of any kind was found in the hive. Both swarms hung in cluster until they died from exposure, without either leaving or returning to the hive. Such cases are very rare.

Ninety-five per cent of the colonies may be kept from swarming by the method outlined above. The queens given should always be clipped before caging. Rarely a colony will sulk under this treatment, cluster out, and refuse to work. In such cases I usually shake them on combs or full sheets, giving a queen at the same time.

In the matter of swarming, there is a difference in seasons that is not accounted for by the difference in the honey-flow. In 1913 I got a heavy crop with little labor. Not one colony in ten even started cells. Last year, with a smaller yield, the bees swarmed from dandelion until frost, even coming out in the rain. Taking seasons as they come, 150 colonies will keep one man busy if all are run for comb honey on the non-swarming plan.

In running outyards after this method, several palliatives may be used that will save much labor. Large entrances should be given, and plenty of super room. Ten-frame hives swarm a little less than eight-frame, but are not so handy for moving. Young queens reared the previous fall will prevent much of the swarming. Dr. Miller tells us that queens of the present season's rearing will not swarm for him. They sometimes swarm here on a fall flow, but not usually.

Newman, Ill.

POSSIBILITIES ALONG THE ST. JOHN'S RIVER, FLORIDA

BY F. M. BALDWIN

Drawn by that tie that so strongly binds the members of our fraternity, I went yesterday, in response to Mr. C. H. Clute's repeated invitations, to Sanford, Fla. I found the flora and conditions so attractive that I cannot resist the desire to tell of what I saw.

Early bloom fills the hives with bees and brood. The first week in March finds them ready for orange, wild cherry, cak, and elder. Before the citrus bloom can close, gallberry, to judge by the indications, will be yielding nectar, and then will come saw palmetto overlapping that flow. There are many acres of all the above within reach of the yard we examined.

Mexican clover, ditney, bay, cabbage

palmetto, and linn are also on every side. Some of these should give a summer flow, even tho the most of them fail. Any two or even one of them would be profitable. From the river dock we could see large stretches of low lands that will be later filled with smartweed and wild sunflower. The variety of goldenrod that is abundant in the Manatee country is much in evidence. In the swamps that are near at hand is a different variety, a much better yielder of nectar. From it the Rev. Mr. Blaisdale used to get a very heavy crop of fall honey in the Apopka Swamp. The latitude and physical conditions are the same at Sanford. One can see no reason why there should be a difference in output.

Much has been written along the line of any place being good enough for bees—the roof of a store building in a city or a back yard in a town. There is much on that side of it; but is it not more desirable to find the finest locations, and get all we can out of them? If there is in one's section a place that can be reached without too much cost where the returns ought to be better, let's be hunting it up. Why not? Florida has a lot of poor bee pasture, and some that is good. Then we have a little that is extra good. Is that not the case in other states also? Why not recognize it, and take advantage of it? At any rate, that is why I am writing about the things I saw yesterday. I hope I'll at least set some one to thinking.

The problem at Sanford is the same that it is in any field. Not all the best flora can be reached from any one spot. Can one better conditions by trying to reach different points at different stages of the honey-flow? I could conceive a place where there would be a big flow from white clover, but little fruit bloom upon which to build up and get ready for it. In that case would it be possible to find a location near by that would combine fruit bloom and clover? I got a fine yield of white honey of the very best quality from clover in western Illinois in 1886. A dry spell in July put an end to it. But it was followed by a fine crop of golden honey from Spanish needle in Au-

gust. Many who were not far away went out of business for that year when the dry spell struck them in July. If they had been on the job they would have been making provisions to share in the August flow. Last summer I moved my bees from Palmetto to Terra Ceia Island. I wanted the flow from black mangrove, and got it. The move much more than paid for itself. If the bees had stayed at their spring location I would have lost this.

The fine flora of the St. John's basin is not all accessible from any one location. Mr. Clute has bought a boat with which to practice migratory beekeeping, but he does not expect to have to move more than a few miles at any one time. For instance, the yard that we examined yesterday is not near willow from which usually a super can be gathered in January and February. The idea is to move to the willow early in the season, build up, and gather surplus. As soon as the oranges begin to show, take the yard and its denizens to a good grove section. If gallberry and saw palmetto are plentiful in that neighborhood, let the hives alone until smartweed and wild sunflower make it clear that another move is in order. This may not pay. It may cost more than it comes to. But it now looks good to me, and I am glad Mr. Clute is about to try it out.

Wildwood, Fla.

INTRODUCING LAYING QUEENS IN A QUEEN-CELL

BY KENNETH HAWKINS

Make the colony queenless toward evening, preferably giving the bees a little time to know they are without a queen. Make an artificial queen-cell as in "Scientific Queen-rearing," by Doolittle, but make it half an inch longer than an ordinary queen, with quite heavy side walls. After dipping the last time, cut off the point with a sharp knife and dip once more, leaving a thin point. Place the queen in this head first, and pinch the cell tightly shut behind her, and staple on a frame in the center of the cluster of the colony previously made queenless. Close the hive and leave it alone for 24 hours. Queens laying before being put into the cell will continue that night. Mated queens from the mails and virgins will invariably be successfully introduced. It has been suggested that the queen might suffocate before getting out. Some of my losses not otherwise explainable might have been due to that. I advise always pricking

a few holes in the side walls of the cell with a pin.

Successful introduction of queens depends not at all on odor, but entirely on the attitude of the queen toward the bees, and not *vice versa*. That explains the Simmons fasting method, and probably the Miller smoke method, which frightens both bees and queen alike; and only when they recover simultaneously does the latter method work. I have not experimented enough to know my real percentage of failure.

Plainfield, Ill.

[Plans for introducing queens are legion. We shall have to give our correspondent credit, however, for having proposed a method that is at least unique. At first we feared that the queen might suffocate or starve before being released by the bees, but the pin-holes doubtless will overcome the latter danger.—Ed.]

Heads of Grain from Different Fields



THE BACKLOT BUZZER.

BY J. H. DONAHEY

Uncle Andy Sweetclover says these loafers that hang on the outside of the hive when honey is comin' in remind him of a colony he once bought from a stranger. Smoke wouldn't budge them. They seemed to like it. Come to find out, the bees had come from Pittsburg.

THE HUMMING OF BEES.

BY GRACE ALLEN

When the white cherry bloom with its breath
of perfume

Made fairyland here in the tree,
How the bees all would come and hover and
hum

In riotous ecstasy!
And then when I heard, I was stirred—was
stirred

By the mood that eternally seems,
In blossoming trees that are haunted by bees,
To open the doors of dreams,
The bonnie bright doors of dreams.

But now it has died, the tree of my pride—
Its worn boughs are ugly and dead;
The spring, too, has gone and the midsum-
mer dawn,

Half-clouded, hangs hot overhead.
But tho cherry-trees die and Aprils drift by,
And shadows come blurring the gleams,
Yet forever to me shall the hum of a bee
Swing open the doors of dreams,
The bonnie bright doors of dreams.

What in the World was She Doing?

A few days ago, while looking thru a nucleus I happened to be just in time to see the queen push the cap of the cell open and look out for about a second, when she went back again. I lifted the cap of the cell, and she came out. I watched her closely to see what she would do, and was greatly surprised to see her put her abdomen into a worker cell as far as it would go, and keep it there for a few seconds, just as a laying queen would do. When she came out I looked closely into the cell, but could see no sign of anything. Next day I looked at that hive again; and after looking over the combs several times without seeing the queen I was about to close the hive when I saw the tip of a bee's abdomen sticking out of a worker-cell. But there was something unusual about it, so I touched it with my finger; and, after a great struggle, out came the queen. But she did not stay out long, for she just walked a few inches away and crawled into another cell in which she stayed until I got tired of waiting (about 15 minutes). I again touched her, and again she laboriously backed out, but only to go into another cell. As she seemed determined to stay there, I let her stop. I might say that there was absolutely no honey in any of those cells, being cells from which bees had just hatched. And they were deep cells, too, as only about $\frac{1}{8}$ of an inch of the queen's abdomen was protruding. Do you think that she was sleeping? and what do you think she was doing the day before?

CAPEWEED HONEY, BUT NOT CAPEWEED POLLEN.

After reading *Stray Staws* for Oct. 15 I thought the following, regarding bees visiting the same kind of flowers on the same trip would be of interest. This season, fully half of the bees working on capeweed, which yields light-yellow pollen in large quantities, had a full load of bright-red pollen. The bees, which were getting honey from the capeweed, were, in most cases, well covered in the yellow pollen. Evidently the red pollen was of a better quality, as very few bees had loads of the yellow pollen.

Douglas D. Brearley.
Subiaco, West Australia, Dec. 10.

[Dr. Miller replies:]

This is interesting, and helps answer a question that has puzzled me no little, and no doubt has puzzled others. When one is looking for a queen it sometimes happens that she cannot be found, no matter how carefully one looks over the combs, even for the second time. When that happens, experienced beekeepers well know that she is not likely to be found, no matter how many times one looks over the combs, and the wise thing is to close the hive until an hour or

more later, or the next day, when, most likely, she will be found very readily.

The puzzle has been to know where the queen was that she could not be found. Of course, if the bees were unduly stirred up and running, she might be on the side or bottom of the hive; but in many cases where the bees have remained in perfect quietude the queen has remained invisible. The only guess I could make was that she was hidden; but where? Sometimes she is hidden under the bees, the queen being close to the comb; but a light touch of the fingers upon any such mass of bees easily discovers whether she is there or not.

The only guess left then was that she was hidden in a cell; but it was only a guess, and I never had any proof that it was the right guess. Mr. Brearly now furnishes what seems to be quite satisfactory proof. To be sure, this was a virgin queen, but why should not a laying queen act the same way?

What was that queen doing in the cell? She might possibly be merely hiding because frightened; but a queen as young as she was is not easily frightened, and is generally very easily found, altho when a few days older she is more shy than a laying queen. It is more likely she was resting, and, in the case of the longer stay, very possibly sleeping. A queen sleeps as well as other folks, doesn't she? She remained in the cell 15 minutes. It would be interesting to know how much longer she would have remained if she had not been disturbed.

What was she doing the day before, when she went thru the motions of laying, but of course without laying? I don't know; possibly, as happens in other cases with the very young, going thru motions that can mean nothing, but pre-glancing what they will do later on.

Mr. Brearly's observations with regard to pollen is a bit puzzling. Bees were working on capeweed, and half of them were carrying loads of pollen obtained from some other flower. We are not told anything about the number of bees working on capeweed, nor whether it was yielding honey largely. If there was something of a dearth, then it was not so strange that the bees should get honey from one source and pollen from another on the same trip. If a considerable proportion of the bees were working on capeweed, and that plant was yielding well, then it was a remarkable thing that they should get pollen from another source.

Marengo, Ill.

C. C. Miller.

Can a Bee Candy be Made that will be Suitable both for a Moist and a Dry Climate?

I am situated on a promontory 84 feet above the Atlantic where the humidity at times is excessive; and, tho an amateur in bee culture, I think I have discovered something that may interest you.

Last fall I put away in an expensive and well-considered apiary 11 stands of bees; and as three of them did not appear to have such

abundance of honey needed to carry them thru the long and severe winter here as recommended in the books, I purchased a number of pies of "bee candy" and placed one in each of the three lightest hives, setting each pie on one end of the frames in each hive.

In the spring it was found that only these three hives had perished; and on opening them it was found that most of the combs in the middle of the frames were crushed and apparently melted, and all the bees dead, and I could not understand it.

Today is an exceedingly humid day, and I find that the pies of "bee candy" left over have melted into very thin syrup, and dissolved the pie-crust, so that the liquid, almost as thin as water, has all run out, so I am satisfied that that is what killed my bees.

Would it not be possible to make a candy that will not dissolve in the extremest humidity by testing it during manufacture?

Gloucester, Mass.

Anson Mills.

[The conditions referred to so far as humidity is concerned are rather extraordinary. It would be very difficult to make a bee candy that would stand this kind of condition, and yet one which would not be too hard and dry in an ordinary climate. It is difficult to make a candy that would be moist in a hot dry climate and not be too soft for your conditions. In fact, we may say it is impossible to meet both conditions in one candy.]

We doubt very much, whether, with the amount of moisture that you have, any candy could be made that would hold its consistency unless the ordinary bee-cage candy is used, and even that should be put in a metal or porcelain dish, right side up, and not upside down. Our belief is that you had better rely upon sugar syrup made thick or combs of sealed stores.—Ed.]

Clipping the Queen's Wing without Picking Her Up.

With some, clipping queens seems to be a job that causes some nervousness. I have a plan which I have never seen described. I find the queen, and, with the comb flat upon my knees, I take a small pair of spring tweezers, such as jewelers use, and catch her by one wing, and pull just hard enough to hold her without lifting her off from the comb, and with a pair of scissors in my right hand I snip off the wing which I am holding. By this method one doesn't get nervous, or at least I don't, because it isn't necessary to handle the queen, and she doesn't get scented from one's fingers. I have clipped about 75 queens this summer, and haven't lost one, which is pretty fair for a beginner.

—SHE FAINTED AWAY.

I had a curious time with one queen, however. Just as I cut her wing off she fell over on her side, just as tho she had fainted, and lay there quivering. The worker bees rushed up to her and began to nose her over.

I thought to myself, "There is my first dead queen." She lay there for about a minute, then I took my tweezers and gave her a poke, and she immediately got up on her feet and began running around over the comb as if nothing had happened. I went into the hive about a week after, and she was laying all right. This seems to indicate that cutting a wing off does give the queen more or less of a shock. I have always thought that it does.

PLACE END-SPACING STAPLES LOW.

In lifting a frame out of the hive one has to be very careful that it doesn't bump against the end of the hive, and in so doing crush some of the bees. I have hurt a good many that way, and it made me feel bad to see the poor little fellows crawling around all humped up as tho they were in great pain; so, instead of putting the spacing-staples just below the top-bar, I put them clear to the bottom of the frame. With it down there one can take out a frame without hurting a bee, and not have to use any precaution either. Of course if one wished he could put in four staples—two above and two below.

Wallowa, Ore.

B. R. Curtiss.

[We doubt whether it is a shock to the queen to have her wing clipped. So many of them go on their way, unconcerned as tho nothing had happened that it seems hardly possible that any queen could feel any shock. Queens are sensitive, "highly strung" creatures. On two occasions we have known queens to double up in that peculiar way merely because they were picked up. It seems to be the result of fright. A number have referred to it as "cramps."]

No less a beekeeper than W. L. Coggs shall advocates placing the end-spacing staple low on the end-bar.—Ed.]

Boosting the Cell-builders.

On page 613, July 15, the editor says, "Make colony queenless for six days before giving freshly grafted cells." Suppose the following is given a trial.

As soon as the "cell-starting" colony refuses to do as good work as may be expected with freshly grafted cells, make another colony queenless and broodless, giving all brood to the colony that has been used as a cell-starter. Shake about half the bees from this colony, No. 1, in front of the hive; then shake the queen and bees from No. 2 from all frames in front of same hive. You can then shake the rest of the bees from No. 2 in front of the same hive, and allow the queen from colony No. 2 and bees from colony No. 1 to go into the hive together. The fact that the bees that have been queenless for some time find a hive of brood when they expected nothing but frames of honey causes them to take most kindly to the changed conditions. I have never lost a queen this way, even with fertile workers in the hive.

I usually make this change about every

ten days, and about the sixth day I shake a few frames of bees, about three to a colony starting cells. In this way the colonies are not run down.

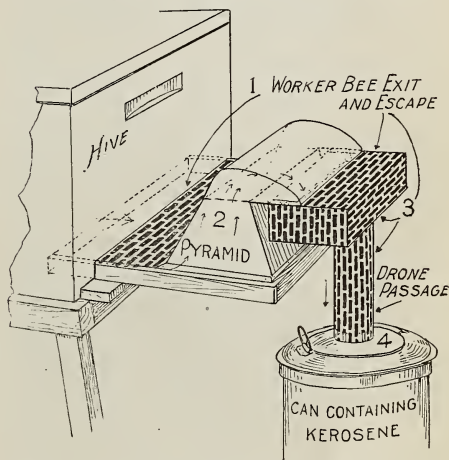
Some days ago I had one of these queenless and broodless colonies start 102 cells in one day. A colony that has been without a queen and brood for about three hours will do better work than one that has been queenless for six days. At any rate, give it a trial.

Spring Hill, Tenn.

Ben G. Davis.

An Apparatus to Destroy Drones.

I am sending you a drawing which represents a drone-trap. This will serve to prevent swarming, provided the wings of the queen have been clipped.



No. 1 is a perforated zinc sheet, allowing the workers to pass thru, but not the drones, which are thus obliged to pass up to the pyramid, and on thru the tube 3 and to the tank 4, which latter contains kerosene. Inasmuch as the passage from No. 3 to the tank is made of perforated zinc, the workers have time to escape, and the queen, whose wings have been clipped, cannot pass up thru pyramid 2. The walls of the latter should be of glass on the inside and tin on the outside, to avoid the light, while escape No. 3 should be of sheet zinc, perforated.

Timote, Argentina.

Francisco Peroy.

When is a Select Queen Not a Select Queen?

I am interested in Arthur Williams' article on page 548, July 1. I wish the readers of Gleanings would express themselves in regard to the advertising of untested queens.

Untested queens should be sold as untested, and there should not be two grades of untested. One of the poorest-looking untested queens I ever received proved to be one of the best. Did some one say the selection was for color only? The advertisements do not say what they are selected for.

Queen-breeders can grade tested queens; but what do they know about the untested?

I shall favor those listing one grade of untested queens, altho, of course, some of the best breeders list two grades of untested.

Antioch, Cal., July 8. Geo. W. Moore.

[Whether there is any merit in extra size, it is a fact that most beekeepers favor large queens. Why should not a large fine-appearing untested queen be marked "select"?

We agree that there is far too much ambiguity in the so-called grades of queens. The term "golden," for instance, may mean a bright-yellow three-banded bee, or it may mean a leather-colored four or five banded bee. Can there not be greater standardization? We should be glad to hear from our readers.—Ed.]

How to Disinfect Supers that have been over Hives Containing Foul Brood.

Please let me know the best thing to do in the matter of about eleven supers which I placed over some hives containing foul brood, and which I removed a short time afterward. Could I dip these supers in salicylic acid or hot water and use them again? or would it be better to burn them up?

Claude W. Wilson.

Bardstown, Ky.

[The eleven supers which have been placed over hives containing foul brood may or may not have the germs of disease; but it is always wise to err on the safe side, and so we would recommend scorching them out with a common painter's torch. All that is necessary is to blacken the inside of the supers.

Painting the insides with salicylic acid, or putting them in boiling water, may or may not be effective—probably not; but it is a great deal safer and better to use the actual flame itself. If you have no painter's torch you can place a little straw in each super, ignite it, and stir it around so that the flame will reach all sides of the super. Then dash on a little water to quench the flame.—Ed.]

Queens Whose Eggs Fail to Hatch.

I had a young queen this spring that commenced laying when 12 days old. I was busy with other work, and did not look in that hive again for more than ten days, and at that time there were still eggs, no larvæ nor young bees. I thought then that perhaps I was mistaken at first about the eggs, so I waited three more days and still eggs and no larvæ. So I waited three more days, and looked thru all the literature I had, but could not find anything like it. I asked men who had kept bees for twenty years, and they said they never heard of a thing like it, and she was as big and fine looking a queen as any one ever saw. Now, can you tell me why that queen's eggs did not hatch?

Glasgow, Ky.

Joel O. Garman.

[There is, perhaps, one queen in ten thousand whose eggs will fail to hatch. We have had one or two in all our experience,

and we have a number of reports of them, but they are by no means common. The only thing to be done with a queen of that kind is to kill her and replace her with another queen. Why these queens fail to lay we do not know unless there was something wrong with their development in the first place. There is nothing particularly unusual about the queen laying when twelve days old.—Ed.]

How to Mark Sections and Cases to Comply with the Federal Law.

I take the liberty to address you in regard to the net-weight law on honey. In the season of 1915 I marked each box as the law requires, and then I marked the actual net weight on each case, not including the weight of wood and carton. This made $2\frac{1}{4}$ lbs. less weight on each case than I had usually given. I sent to a firm that had done a satisfactory business for me for 20 years. I fully described the net-weight law, and told the firm how I had weighed it, etc. They evidently sold the honey by the pound instead of the case, charging the usual price per pound, which left $2\frac{1}{4}$ lbs. short on each case. A neighbor of mine marked his sections the same as I, but put the weight on the cases as usual—that is, wood and cartons in.

It seems to me the weight on the cases should be the net weight of the honey; but that belief made me lose over one hundred dollars on my sales last year. Which is customary, and which is right?

Shoreham, Vt.

R. H. Holmes.

[The question of just what is necessary to comply properly with the provisions of the net-weight law is still a matter of uncertainty to a good many beekeepers, and there are many who, in complying with the requirements of the law as understood by them, feel that they have been placed at some disadvantage like yourself, having neighbors shipping to some market which pays no attention to the requirements of the law. Yet ignorance or carelessness will not exempt a person from the penalty. Our advice has been to meet the requirements as nearly as possible. In states not having the net-weight law, it is not necessary to stamp honey in any way unless it is intended for interstate shipments; and under these conditions honey sold in the local market is exempt from the requirements of the law in regard to marking; but when sent out of the state, then it comes under the provision of the net-weight law, and a beekeeper selling his honey locally has no assurance of the honey being sold within the limits of his own state.

We pack the honey in cases containing sections of uniform weight, marking the sections with the minimum weight as "Net weight not less than 12 oz." The same stamp or mark should appear on the outside of the case. When the law went into effect, and honey was sold by net weight, the price

advanced 1 ct. per lb. to cover the weight of the section lost by the beekeeper, so really he is getting the same price as before. We do not believe it has been customary for beekeepers as a rule to sell their honey by weight, including the weight of carton and section, as we infer you had been previous to the enactment of the net-weight law; so in reality you will lose only 1½ lbs. per case.

So long as the law stands, there is only one way left open, and that is to comply with its requirements, regardless of what others may do.—Ed.]

Bees Drifting into the Wrong Hive.

I have my bees arranged in two rows at right angles to each other in my backyard, a space of about 60 feet square, one row facing the south and the other facing the west. The hive nearest the angle facing the west, I have noticed for the past month, shows at all times a lot of dead and dying bees in front, with fighting bees on the entrance-board. This seems to go on when the yard is brisk with honey-gathering. The colony has a good queen, and is full of brood in healthy condition. The hive is now light in bees, and has gathered but little increase in honey.

My solution of the matter was that the location of the hive was such that bees from other hives entered it by mistake, until this hive has really worn itself out trying to drive out the innocent invaders. I have now moved it away, and today it seems quiet, but so weak in bees that all but few seem busy inside attending to the brood, with just a few coming and going.

Youngstown, O. Dr. C. E. Blanchard.

[Very often a colony will ball a queen for no apparent reason, and the only thing to do is to cage the queen and let them try it over again.

Your solution of the trouble of the one colony nearest to the angle is correct. The bees made a mistake; and, during the height of the honey-flow, the alien bees were not welcome, and, of course, were killed one after another. The probabilities are that the bees in the angle hive drifted to the other colonies, resulting in a constant decrease in the strength of the hives. You did the right thing in moving the hive to another location.—Ed.]

Polk County (Iowa) Field Meeting.

The Polk County Beekeepers' Association held its third annual field meet at Union Park, Des Moines, on Friday, July 28.

The attendance was not large, partly because it was intensely hot, and partly because the meeting had not been sufficiently advertised. All present joined heartily in the picnic spirit and dinner and were pleased and profited by the program.

Good talks were given by A. L. Clinite, of the Des Moines School Board; by Hamlin B. Miller, of Marshalltown, and by Editor Jarnagan, of the Iowa Farmer. A splendid

reading was given by Miss Crow, of the Des Moines schools, and folk dances by children. J. W. Schlenker, of Ankeny, gave demonstrations in handling bees.

Following the program a business session was held and officers elected for the coming year. Dr. C. L. Wright, of Des Moines, is the new president. The doctor is a live one, and great things are expected for next year's meeting.

Charles E. Dustman.

A 7—30 Increase and a Ton of Honey.

We had a very late and cold spring here. The main honey-flow from white clover started June 25, and we got our first new swarm June 28. To date (July 27) this swarm has produced 84 finished sections.

There has been a letup of a few days in the honey-flow, but it has started big again today, and the yard once more is a perfect roar.

We started a year ago last spring with seven colonies. We now have thirty. We got 800 pounds of good honey last year, and we expect a ton this year.

We live on the river, and there is much timber here (basswood), and acres of waste land. Our principal honey-plants are white clover, alsike, basswood, goldenrod, hearts-ease, and buckwheat. My wife is also learning the business.

We started all of our new swarms this year on full sheets of wired foundation. We also use full sheets in sections. We find that it pays us big to do this. We do all of our hauling with a "tin flea" (Ford). We went to a neighboring city, 80 miles away, the other day with a load of honey, and got there for breakfast, sold our honey, and were back for dinner.

I must close and go to the woods and find the source of this honey-flow. I think it is basswood.

Osage, Ia.

G. D. Nelson.

But the Queen Comes from a Worker Egg.

When Mr. Doolittle, p. 474, June 15, will remember that the female bees or queens, mothers of the worker bee, are not the product of a special egg, but the product of a worker larva, made fertile by the special work of the nurse bees, then he will understand how this worker larva made fertile "can transmit to a greater or less degree its habits, faculties, peculiarities, and desires to its progeny of worker bees."

Luis R. Casablanca.

Bayamón, Porto Rico.

A Correction.

In my article, page 611, July 15, I noticed that I made it say five frames in each brood-chamber. It should be nine frames, both the full depth and shallow brood-chambers.

Stanton, N. J.

L. K. Cole.

[We find that the mistake is ours. The original copy read nine frames.—Ed.]

Safe after Nine Years?

I have about 25 boxes which can be used to house bees. They had foul brood about nine years ago. Is this foul brood still in them? How can it be stamped out?

Watertown, Wis. Cornelius Trachte.

[There are two types of foul brood, called the American and European. We assume from what you say your experience was with American foul brood as this formerly was called merely foul brood.]

In case of American foul brood it would not be best to attempt to use the combs again. However, we do not suppose this is what you have in mind. The hives are all right to use, but even tho it has been nine years we should take the precaution of scorching out the inner walls with burning straw or a gasoline blow-torch. This would take but little time and it is worth something to be on the safe side. Safety first! Do not char the wood deeply, simply scorch well, and they will be safe.—Ed.]

And Swarm They Did.

I have just been having an epidemic of swarming the like of which I have never seen at this season. All during the month of June there was just flow enough to keep the colonies breeding up. I did everything a man could do to prevent swarming, but swarm they would and swarm they did. And such swarms I never saw before.

Recently, after a swarm had issued I went thru the old colony for queen-cells. I found and cut out 48. One comb had 20 cells on it, two bunches in the middle of five each.

TWO QUEENS IN ONE CELL.

Later we found one cell with two well-developed queens in it in different stages of development. One would have hatched in a day or two, the other in about a week. This cell was a little larger than usual—wider at the base. There was no wax partition between the two queens—only a tin film or skin. The cell was built on the lower edge of the comb.

S. A. Fuller.

Helena, Ark., July 8.

Does the Law Prevent Moving Bees?

I have 12 colonies of bees out on the farm, and am working here on the railroad. I should like to move the bees here in town. Is there any law in Indiana to prohibit it?

Huntington, Ind.

Carl Christ.

[There will be no difficulty about moving the bees provided they are at least a mile and a half from the new location where you propose placing them. If you do not sell the bees to any one else there will be no law against your doing this; but if you propose selling them you probably would have to have them inspected by some authorized inspector before such sale could be made. In that case write to State Inspector of Apiaries, Indianapolis.—Ed.]

Good for Sore Eyes.

It's a novel sight, and very gratifying, too, to see bees active on red clover as they are here now. This is owing, no doubt, to the effect of the terrific heat and drouth of the last two weeks of July that so pinched and dwarfed the bloom that the bees can reach the nectar so abundantly contained in red clover. Abundant rains within the last two days have broken the severe drouth, and with more moisture in prospect it looks as if white clover and alsike would soon revive with the usual return of nectar to the late bloom.

Manawa, Wis.

E. E. Colien.

[We assume that the red clover referred to here is the second crop. The second growth is usually somewhat dwarfed, so to speak, and the corolla tubes likewise are a little shorter.—Ed.]

Cabinet Scraper for Propolis.

In the issue of April 1, 1916, C. Mitchell relates some experiences with various utensils for scraping frames, etc. Permit me to recommend an article intended specially for scraping, and that is the old-time cabinet-scraper—simply a piece of flat sheet steel about 3 x 5 inches in dimensions, and varying in thickness somewhat. It costs ten cents, or probably now fifteen, at any well-stocked hardware store. The cabinet-scraper is sharpened by setting it in a vise and then drawfiling the edges with a single-cut file. Any mechanic will explain drawfiling. It is a very effective tool for many purposes.

Hoboken, N. J.

B. Keep.

O You Yellow-jackets!

In the evening, when the bees come in heavily loaded, I have observed yellow-jackets pouncing down on them as they alight at the entrance, bite them in two at the thorax, and fly off with the abdomen, which contains the honey-sac, while the front part of the bee, the head and thorax, containing the legs and wings, run around on the front of the hive. I have sometimes seen them go in.

I have been unsuccessful in catching these yellow-jackets, and do not know what to do to get rid of them. I am located in the hills, and the brush is full of jackets.

A Subscriber.

Then They Don't have a Chance.

I think I have found a condition wherein the smoke method of introducing queens will not work. It is when the bees are in a cell building mood—for instance, when they are trying to supersede their queen or when swarming from any cause. With me they will build cells and reject the new queen if they have anything to build them over. I take away all unsealed brood and the old queen and wait twenty-four hours and then introduce.

Grosvenordale, Ct.

Ernest Ryant.

A. I. Root

OUR HOMES

Editor

Without me ye can do nothing.—JOHN 15:5.

Behold, I stand at the door and knock; if any man hear my voice, and open the door, I will come in to him, and will sup with him, and he with me.—REV. 3:20.

A friend of many years has just sent me the tract below. Read it, and see what you think of it.

CONVERSATIONS WITH CHRIST.

If I were asked what is the thing which the devil, the world, and the flesh try hardest to prevent Christians from getting, I should reply, "Conversations with Christ." I say this from my own experience, and from observations of all the Christians I have ever known. A quiet, unhurried speaking to Jesus alone and hearing his replies—this is what every Christian needs every day, and what many get only once a month—or more seldom still—or never.

WHEN DID YOU LAST SO TALK WITH CHRIST?

Stop and answer this question to yourself before you read on.

It is so easy to go to services and listen to prayers and to join in them. It is so easy to sing or pray to him with others, or to think we are doing so because we feel refreshed and helped by it. But what if it should turn out that it was a mistake of ours to imagine that we were actually conversing personally with him at those times; and that we were really talking and singing for other people and ourselves to hear? I tremble for people who pray only in churches or at prayer-meetings, or with other Christians present.

Communion services are very blessed helps and means of grace, but they are not necessarily conversations with Christ; nor is preaching or teaching or working for him. You may be a most religious person—busy all day about God's matters; you may give time and money and thought to him, and yet you may never converse with him. And the danger is, if you do not converse alone with him each day, you will certainly get on the wrong road and get thoroly wrong altogether, and that when you and he meet you will see all your work crumble away, and yourself naked—suddenly waked up to the fact that you and your Savior are strangers to each other. It will be a horrible surprise to you that nothing should remain of all the work on which you spent your life, the solemn words, "Without me ye can do nothing," having been forgotten by you.

He meant that you should have talked to him continually about everything you did, and everything you cared about, and should have been always conscious of his sympathy and oversight and working. But instead of that you talked only to men and women, and made shift with their sympathy, advice, and help. He meant you to ask his counsel about that money trouble. He would have arranged it all; but you only asked your lawyer, and it turned out badly. He meant you to tell him your anxieties about your son, and he would have ended them; but you only consulted your friend, and matters grew worse. He meant you to ask him for light about that doctrine which you could not understand; but you went to books to get it explained, and you became more uncertain than before. He would have satisfied you. He meant you to confess to him that secret sin, and he would have forgiven you and cleansed you; but you confessed it to your clergyman or minister, and it torments you to this hour. He meant you to commit to him that painful illness, and he would have been your physician and healed you; but you trusted your family doctor only, and got no relief. He meant you to ask him how much

money you were to give away; but you settled that yourself, and settled it wrong. He would have been your counsellor about the profession you chose, the situation you accepted, the servant you engaged, the books you read, the friendships you formed; but you chose other counsellors, or did after your own choosing, and all has been failure.

An hour of conversation with him each day will make all the difference.

May the Holy Spirit strike the scales from your eyes now, and may you arise from your enchantment, and take Christ *now* for your personal friend and counsellor!

One there is above all others;

Oh, how he loves!

His is love beyond a brother's—

Oh, how he loves!

With his precious blood he bought us,

In the wilderness he sought us,

To his fold he safely brought us;

Oh, how he loves!

Best of blessings he'll provide us,

Naught but good shall e'er betide us,

Safe to glory he will guide us,

Oh, how he loves!

And will not we take such an almighty lover, Savior, and friend, *wholly* as our counsellor and guide while here below—his own chosen ones, soon to be with him and like him in the glory above?

This little tract has startled me. I have read it several times, and the more I read it the more I am impressed with its truth. In reply to the question which is printed in small capitals, "When did you last so talk with Christ?" the answer to this question will make this Home paper. Those of you who have read *Our Homes* for years past will remember that I have several times—perhaps not very lately—spoken about getting off by myself where I can pray aloud. When greatly discouraged in years past I have sometimes gone off in a field of tall growing corn; and I like to pray when walking along.

In answer to the above, the last time I so prayed was when I paid a visit to the old cabin in the woods, July 13. I reached Traverse City about six in the evening; but I felt as if I must spend the night out in the country up near that old cabin, instead of in a city hotel.

As we approached Traverse City the baggageman on the train said it would cost me \$5.00 to send me up near the old Bing-ham dock on Grand Traverse Bay by automobile. When I suggested that I was equal to the task of walking eight miles instead of investing so much money, he insisted it was *eighteen* miles, and then came down to \$2.50; but when I agreed to pay so much a mile for all over eight miles, he came down to \$2.00, and finally agreed on \$1.50.

I stopped with the nearest neighbor; but before I went to sleep I pushed my way thru the dense undergrowth and explored

all around the cabin, and next morning I was back there again bright and early. It was interesting to see how my various fruits had stood the years of neglect. A Yellow Transparent apple-tree had made an enormous growth, and was just bending with beautiful apples soon to be ripe. There were also some beautiful sour cherries; but cherries are so plentiful in that region that no one seems to care for the cherries out in the woods. Two mulberry-trees were so laden with luscious fruit, just beginning to ripen, that their willowy limbs lay resting on the ground in the deep grass.* My currant-bushes also had stood neglect pretty well; and three Paragon chestnut-trees gave promise of quite a crop of nuts.

It was going to be a busy day with me, and so I had to bid adieu to the old cottage. In leaving I happened to glance my eye back of the house where Mrs. Root and I planted a variety of roses. Back there in the wilderness were roses, almost a wagon-load of them, many of them as large as saucers, "wasting their sweetness on the desert air." As I thought of the pleasant hours we passed there years ago, and as I looked thru the windows of the deserted old cabin and saw still on the walls the photographs of the children, and the other pictures Mrs. Root had fixed up so tastefully in that old wildwood home, it brought back so many memories that I almost felt like crying because I knew I should probably never go back there again to live. Mrs. Root thinks that, at our age, one home in Florida and one in Ohio are enough for us.

As I had planned walking many miles before night, I reluctantly started off. Soon I was in that old lumber road up thru the hills under the dense shade of the maples and other trees. The beauty of the morning scene, and the inspiration of the fresh air away up toward the top of the hill, prompted me to break forth out loud in praise of God. I prayed for many things, and especially that my influence during the busy day that lay before me might be blessed. As I came out of the woods I have now a distinct recollection of a feeling that my prayer was going to be answered.

I have before mentioned that my good old mother used to say something like this: She would tell me what she wanted, and what she expected of me; and then she would end by saying, "Amos, I have been praying over it, and I have had the assurance that my prayer will be answered."

"Dear friends, do not think me visionary when I say that I too felt I had "assurance"

* In that same "deep grass" were great luscious strawberries, the remnants of our strawberry patch of years ago.

that the "talk" with the dear Savior as I went up that shady path thru the woods would be answered.* Two years ago I told you of Mrs. Boone, who led the prayer-meeting there in that Bingham church while her baby lay on a pillow on the floor "cooing" to himself. Well, when I got to the top of the hill I found this same Mrs. Boone; and as she smilingly expressed her pleasure at seeing me once more, she pointed thru a window where there were two beautiful children instead of one. Mr. Boone was cultivating potatoes on the hillside where he had just made a clearing. I wish the readers of GLEANINGS could have seen him get his horse and cultivator thru the snags and roots, and dark, rich, loamy soil. While we were talking, a bright young boy eyed me curiously. I had not seen him for so many years that I did not know him; but we soon made friends. At the time of my last visit, his mother, Mrs. Wilson, was an invalid; but I found her then looking well and strong, and at work in the garden.

My next call was at the home of her mother-in-law, Mrs. Wilson, who has been superintendent of that Bingham Sunday-school ever since it was started, about fourteen years ago, or almost that. Very soon after I got there she said something like this:

"O Mr. Root! you ought to have got around to the Endeavor prayer-meeting last night. Jimmie Hilbert led the meeting."

* In going from our cabin in the woods to our little church over between the hills we were obliged to climb over one of the tallest hills in that region; and from the summit of this hill there is a magnificent view of Grand Traverse Bay on the east and of Carp Lake on the west. For years past, when going over this hill I have been in the habit of singing "Beulah Land"—that is, if I were not too much out of breath, as we often are when climbing that hill; and it just now occurs to me that the second verse of Beulah Land fits in wonderfully with the sentiment of the tract in this Home paper. Here it is:

The Savior comes and walks with me,
And sweet communion here have we;
He gently leads me with his hand,
For this is heaven's border-land.

CHORUS:

O Beulah land, sweet Beulah land!
As on thy highest mount I stand,
I look away across the sea
Where mansions are prepared for me,
And view the shining glory shore
My heav'n, my home for evermore.

Notice particularly the words "sweet communion," and see how beautifully it comes in, as one stands still on the summit, and pulls in great lungfuls of the air in the Grand Traverse region. Why, it is almost worth a trip to northern Michigan to stand on that great hill and sing with all your might,

As on the highest mount I stand
And look away across the sea.

It may require some stretch of faith to add—

Where mansions are prepared for me;

but to stretch your faith and your lungs also is good for one, both spiritually and physically; and I truly believe it is our privilege even in this world to get a faint glimpse now and then of that "shining shore."

"Jimmie Hilbert led the prayer-meeting, did you say?"

She smilingly assured me that it was Jimmie himself. Let me explain a little. Years ago, when I found friend Hilbert up among the hills, there was quite a family of Hilberts. The two youngest, Jimmie and Gladys, were not only the life of the household, but sometimes they kept the household pretty busy in getting them out of the scrapes they got into. There was but little difference in their ages; but they were always off together somewhere. One afternoon Jimmie got lost; and as he was only three or four years old there was quite a stir in the neighborhood until toward night they found him away over the hills curled up in a fence-corner on the grass, sound asleep. He had evidently wandered away, got tired of trying to find his way home, and concluded to "rest up" while the neighbors hunted for him. Jimmie was always inclined to be a little wild and reckless, but still he loved the wildwood and the farm. A few years ago his father got into the "moving-picture business," and he went around from town to town, taking his family with him. But Jimmie got tired, and wanted to go back home. It may not be true; but one of the neighbors said Jimmie got so homesick to get back among the woods and hills that he said that if he had got to stay in the picture business all his life he would kill himself and have it done with.

As Jimmie grew from boyhood to manhood I felt anxious for his future, and had several talks with him. Two years ago his father got a motor truck to carry his fruits and garden stuff to market, and Jimmie soon learned to run that truck with wonderful skill, and seemed to enjoy it. When good Mrs. Wilson told me that wild Jimmie had actually *led the prayer-meeting* I felt that part of my prayer as I walked thru the woods had been answered already. Gladys, that used to be only a baby, full of mischief, was now a bright grown-up woman, or approaching womanhood. She reminded me so much of her sister Alice that I could hardly keep the tears back. When I expressed my pleasure to hear that Jimmie not only attended prayer-meeting, but had led the meeting, she said, "Why, Mr. Root, I too have led the prayer-meeting." I should not have been so much surprised to learn that Gladys led the meeting, because the girls and women folks more naturally gravitate toward prayer-meeting and all religious gatherings; and may God be praised that it is so.

After dinner, Jimmie took a load of cher-

ry-pickers up to the cherry-orchard, and I went along. I told his father I wanted to see the cherry-trees. Yes, that was true; but I also wanted to have a good talk with Jimmie all by himself. Good Mrs. Wilson said that, while they were members of the Endeavor Society, and led the prayer-meeting, neither Jimmie nor Gladys had as yet united with the church. I had got something of a promise from Gladys, and I wanted some sort of pledge from Jimmie. When I told him how glad I should be to know that he was a member of that little Bingham church he finally said something like this:

"Mr. Root, I am not ready to promise you, just now, that I will unite with the Bingham church; but this I will promise: I will say that, whatever happens, I will *stick to God*."

He gave me his hand on it, and I felt that such a boyish promise as that perhaps meant more, before God as a witness, than a promise to unite with any particular sect or body of Christians. I think of it again and again, and feel glad and happy. "I promise, whatever happens, to stick to God." Dear reader, do you know of any better pledge given by a boy just merging from boyhood into manhood?

By appointment I met at the Hilbert home Mrs. Erna Rorabacher, an older married daughter of the Hilbert family. "Erna," as we always called her, was a little older than Alice. She now lives in Wisconsin. Some time ago I sent her one of my little tracts, "How to be Happy when People Abuse You." I think she wrote to tell me she had just united with the church at Green Bay, Wis.; and when she showed the tract to her pastor he preached a sermon with that tract as a text, and Erna stood at the church door after the services and gave each worshipper one of the tracts. She said to me, "Mr. Root, you will never know, in *this* world, how much good those tracts have done."*

* Friend Hilbert is still a beekeeper; and as I stood before the door my eye caught a glimpse of toward a hundred hives tiered up, most of them two stories high, some three stories, and a few, if I remember correctly, even four stories. When I asked friend Hilbert if we were to understand those four stories were full of honey, he got his smoker and took out comb after comb filled and sealed with beautiful white honey. To see if I could detect the source I took my knife and cut out a mouthful from one of the great white slabs; and I think I never tasted any more luscious honey. It was probably a mixture of clover and wild red raspberry; and, by the way, according to my notion there is no better honey in the world than the raspberry honey of northern Michigan. Friend Hilbert's plan is to leave the honey all on the hive, and do his extracting after the season is over or nearly so. In this way it is most perfectly ripened, and superior, of course, to the unripened, and the job can all be finished up at once. With the present price of sugar, these great heavy slabs of honey are the

Then she added that there was a woman in Traverse City who was so anxious to see me that she almost cried when she learned, two years ago, that I had been in Traverse City and she did not know it; and she sent a special request to have me call. Her reason for wanting to see me is one I have heard so many times that it is almost laughable. She said that, in years gone by, in her early childhood her father kept bees, read GLEANINGS, and thought there was nobody in the world like Mr. Root; and her good husband placed his Buick automobile at my disposal while I waited for the night train. As I was interested in the summer cottages he took me past the beautiful summer homes in the edge of the woods around both points of Grand Traverse Bay. Cottages are scattered all along the shores of the bay. The water is as clear as crystal, and the white sandy bottom makes an ideal place for summer outings. Women and children in light airy clothing go there to pass the hot months.

After a refreshing sleep, even on the cars, I awoke in Detroit, a stranger, as I supposed, in a strange land. Our Homes for August 1st has told you of my finding my good friends the Flowers, and how they took me in their automobile not only to the great Ford establishment but all around the city. Surely I can say with the Psalmist, "Goodness and mercy shall follow me all the days of my life, and I will dwell in the house of the Lord for ever."

Now, with this long wandering-away from this subject of that little tract, let us get back. Was not what I have been telling you an answer to that prayer in the woods, that the dear Savior would bless and guide my footsteps during the two following days?

This talking with Christ as described in the tract is to be where nobody can hear or know anything about it. At such times I do not even want to think of how it would strike the people or what others might say. It is all between you and your unseen Lord and Master. A hypocrite or an unbeliever never prays when he is alone. It would be stupid, and sheer folly. I am ashamed to say that of late years I have not gone off by myself and "talked with Christ," as I did years ago, and I firmly believe I have suffered in consequence. It is mostly when disturbed, and something worries me, that

simplest way of feeding a needy colony. Certainly it is the *simplest*, and may be, all things considered, the *cheapest*. Years ago I decided that a pound of honey in the comb, well ripened and sealed up, was worth a good deal more than a pound of sugar in preparing bees for winter—perhaps twice as much. I should like to know what Dr. Miller thinks about the comparative cost of this manner of feeding.

I feel like going away by myself where I can pray out loud; and such praying almost invariably bears fruit.

After the above was in type I came across the following in the *Sunday School Times*. I give it because it is so much in line with our tract at the head of this Home paper. I think I will put a head on it—

"TALKING WITH GOD."

Recently a lady I know had this experience: She had collected a debt due her, and had put aside the Lord's tenth. She was about to apportion it out to home and foreign missions, when suddenly the question came, "Have you asked God about the disposition of that which belongs to him?" She fell upon her knees and waited a while. Suddenly there came to her mind a person she had not seen in years; in fact, it had been about twenty years since they had been in touch with each other. This person, the daughter of an old minister, left with very limited means, served the Master by putting a baby organ in an old buggy and driving out in the country to play at the meetings of an denomination. The order came, "Send ten dollars to that lady." It was done, and the return mail brought a letter saying, "I was sitting on my little porch when your letter came, and I had just said to my heavenly Father, 'Lord, you know I've promised to go to a meeting, and I want to go and help; but you know I haven't a dollar, and my old buggy can't be mended for less than ten. If you want me to go, please send me the money.' Was it not a case of 'Before ye call, I will answer'?"

TRUE AND FALSE PATRIOTISM.

The following, which I clip and abbreviate from a tract sent me, is, as I understand, by Frederick Lynch, in *Christian Work and Evangelist*. I have given place to it because, almost for the first time, it has come to me that what is called patriotism, or a love for one's country, may be not only a mistake but an instigation of the Devil. Those who claim to be followers of the Lord and Savior Jesus Christ should love all countries as well as their own; and I begin to think that the command "Thou shalt love thy neighbor as thyself" might fittingly—at least at the present time—read, "Thou shalt love other nations as thou dost love thine own nation." When humanity gets up to this view of patriotism, worldwide peace will come. As I take it, Frederick Lynch has been himself a witness of the horrors of the battlefield.

Women are rushing from besieged and burning cities with little babies in their arms, and cold, hungry, tired boys and girls, hardly old enough to walk, trying to keep up. Poverty stares millions in the face—poverty not only during the war, but during long years to come. Thousands of women are to be widows, millions of little children are to be left fatherless. Natural affections are already blotted out, and their place being taken by strange, cruel lusts and passions. The virtue of women will be a free commodity for all soldiers. Drunkenness has already spread thruout these lands in a bad orgy.

The thousands of men we saw howling in all the cities of Europe were not men any longer. They had become beasts. The beast could even be seen in their eyes. They howled for only three things—drink, women, and the blood of their brothers. Perhaps there has got to be a wholly new presentation of Christianity before these things can be stopped. Perhaps we have really got to teach what Christ himself taught, namely, that love of all Christians for each other, all men of good will for one another, must transcend race, nationality, and every other bond. We have never dared preach this. He even went further, and said it must transcend *family ties*.

There are exceptions, but in most of us the beast lies just below the surface, and nothing but a regeneration which shall sweep thru men's souls as a wind from heaven can make them clean.

LOVE'S OF ONE'S COUNTRY BEING RIGHT.

This whole miserable business has arisen out of a perverted patriotism, a race consciousness raised to the power of madness. It was a Serbian "patriot," a devotee of "greater Serbia," who threw a bomb that stirred Austria to revenge. All thru Europe there is this patriotism which makes a god of one's country, and declares there is no other god, which puts love of country above love of one's country *being right*.

the corn crop unless it rains within a very few days. Really God is very good, and I believe he will send the rain in his own good time. Mrs. Whitcomb's health is very poor; but I have not felt so well in ten years as I have this summer. With 100 in the shade almost every day, yet I am standing the hot weather finely. My son James is down on the Rio Grande with the 4th Nebraska National Guard waiting and watching for President Wilson. He has a wife and three children here in Friend, but is too proud to ask for his discharge under the order of the Secretary of War.

Friend, Neb., July 28.

E. WHITCOMB.

THE GOSPEL TRACT MISSION.

For some years I have been more or less acquainted with S. E. Roth, of Woodburn, Oregon, who sends out gospel tracts, etc., free of charge. I clip the following from one of his tracts:

Gospel tracts, leaflets, calendars, and blotters free as the Lord provides the means to print and mail them.

GOSPEL TRACT MISSION,
Rt. 2, Woodburn, Oregon.

"I AM TRYING TO BE A CHRISTIAN WITH ALL MY MIGHT."

On pages 502, 503, June 15, I made mention of E. Whitcomb, of Friend, Nebraska. It would seem that for some reason or other he has not been getting GLEANINGS of late; but I will take pains to see that he gets it from this time on. With this explanation I think our readers will be much interested in the letter below. It is characteristic of Friend Whitcomb:

Brother E. R. Root:—I have been thinking of you quite frequently of late, and wondering if your father, A. I. Root, is yet living; and if so, how he is getting along. When I first started out to be a Christian I was greatly aided by his kindly advice and real helps. I am trying to be a Christian yet with all my might, and am running the newspaper and "monkeying" with the bees in order to help pay expenses. When last we met I think it was down at Dr. Gandy's, investigating his catnip honey. What a sly old mink he was, to be sure! We were able to secure quite a lot of catnip honey ourselves last year, and Mrs. Whitcomb thought the flavor was grand.

Along last winter I noticed an account of your failure in attempting to put a live bee in your mouth without being stung. Mr. Kretchmer once attempted to demonstrate that to me at Chicago, and I pulled the sting from his tongue. In making that illustration a drone is much safer, and it has the same effect with the boys. I am thoroly convinced that the bee is "no respecter of persons." I am in possession of 25 colonies of bees. They stored quite a lot of white-clover honey during June, and swarmed "to beat the band." One could find a swarm hanging on a tree or a bush almost any time.

One swarm alighted on the top of a maple-tree about 30 feet above the ground. This was out of the reach of a swarm-catcher, and I am rather too old to climb any more, so I fixed the hive on the ground and shot the limb off with a 10-gauge shotgun. They came down all right, and were placed in the hive. The weather is very dry now, and the bee business is all shot to pieces with hardly a bloom in sight. Really we are up against it with

The letter below will explain more fully his lifework; and after you read it I hope you may be prompted to send for some of his tracts, not forgetting a few stamps, or something more than stamps, if you feel like it. My opinion is that whatever you may send will be "treasure laid up in heaven," if not exactly here on earth.

Brother A. I. Root:—

Greeting in Jesus' name

I just thought if I told you what we, in great weakness and awkwardness, have been trying to do* along the line of distributing the gospel in tract form and otherwise, you would make mention of it in GLEANINGS and cause many of God's dear children to pray for us and assist us otherwise.

God has mercifully allowed us in the past eleven years to distribute from several hundred to 10,000 Gospel Tract Calendars annually, also many thousand (possibly millions) of pages of tracts, leaflets, etc., free of charge.

Last year we sent out about 9000 of those calendars, distributed about 50 copies of the Bible and many testaments, gospels, tracts, etc. Now, we do not want to boast, but thought that, if some of God's faithful children who read GLEANINGS knew what our Gospel Tract Mission stands for, and knew that we are just now in need of your most earnest prayers, it would possibly result in much good both to our humble establishment and to others who are interested in distributing literature. Now remember, dear brother, we are *not* a rich concern—have all of life's necessities, such as what we eat and wear; but above that we have far from a thousand dollars' worth of property in this world's goods: are somewhat in debt, and need funds for printing next year's calendars and sending out Bibles, tracts, etc., for which there is a great demand among the poor in various countries. I have sent out literature to United States, Hawaii, Philippines, and even some to Australia, New Zealand, Africa, etc. Oh the joy and satisfaction to be allowed to help a little in proclaiming Jesus' love! It is beyond our ability to express it.

Now our humble request is this: that you mention in GLEANINGS that we wish the prayers of all of God's children that we may be enabled to continue—in spite of hard times—to send out the gos-

pel free as heretofore; or, if it please God, more so than ever.

I would like to mention that I am interested in poultry, and have an incubator standing not more than twelve feet from me here in my little printing-shop, and the chicks are hatching right now. They peep and make quite a fuss. I also have a few stands of bees; have an observatory hive standing

in the rear end of my printing-shop, and am much pleased in watching the busy little creatures doing what God created them for. I wish mankind were as busy trying to fulfill their purpose of creation.

I am glad to hear from you at any time. Many thanks for your kindness in extending our subscription gratuitously for another year.

Woodburn, Ore., July 23.

S. E. ROTH.

TEMPERANCE

OUR CHURCHES, OR THE LIQUOR PARTY—WHICH SHALL RULE?

From a column article in the *Youngstown Telegram* I clip the opening and closing paragraphs as below:

THE EAST SIDE CLEAN-UP.

The East Side has banished the saloons. Because the work has been carried on without noise or blare of trumpets, the significance of this action is probably not understood by the city at large. It is one of the most advanced steps ever taken by the people of a section of Youngstown to improve their own neighborhood, and, incidentally, to benefit all Youngstown.

In the clean-up movement the pastors and members of the Immaculate Conception, Grace Methodist Episcopal, Second United Presbyterian, and Himrod Avenue Baptist churches, the St. James' Episcopal chapel and Emma Street mission participated. There were non-church goers as well who gave assistance; but by general consent the honor of being the commanding general in this great movement belongs to Rev. J. R. Kenny, pastor of the Immaculate Conception church. It was Father Kenny who first raised the protest against objectionable saloon conditions and undertook the leadership of what would have been looked upon twenty-four hours before as a forlorn hope. It was his summons to East Siders to "clean off their own doorsteps" that awakened them to a realization that they were submitting to an unnecessary handicap to the progress of the East Side. The fact that ninety-two per cent of the men of voting age in his own congregation signed the ouster petitions, and pastors and members of other congregations willingly took up his rallying cry emphasizes the progressiveness.

The above demonstrates most emphatically what has long been said, that if the churches of any average town or community, or even the large cities, would work together, the saloons would have to go. My impression is that East Side, Youngstown, had been for years past under the dominion of the liquor party that had trampled every law under foot, and by action, if not by word, said to the good people of East Side, "Help yourselves if you can;" and the above tells how they could and *did* "help themselves."

Later.—The clipping below from *The American Issue* tells what happens when the churches pull together.

WHY THE DRYS WON; AND WHY TWO BIG CITIES KNOCKED OUT THE SALOONS.

What was the big factor in the voting dry of Duluth, Minn., a city of 100,000 population? Why did the nearby city of Superior, Wis., with 40,000 population, vote dry?

Well, the drys in both places had good organizations, and the churches pulled together for the overthrow of their greatest enemy, but that was not all. The heads of the great iron mines and steel works near these cities threw their influence on the side of the drys, and thousands of their employees enthusiastically boosted the dry cause. When capital and labor unite with the church they form an invincible combination.

Farming Business gives us a little more information in regard to the outcome of making a city dry.

One proof that prohibition will keep the jail free of drunks is found in a news report from Superior, Wis. On Saturday, July 1, the town went dry; on Saturday, July 8, the city jail was empty in spite of the fact that it is a town with close to 50,000 population. It is the first day "in the memory of the oldest veteran policeman" that the jail was empty.

This is but the common experience of communities which have changed from wet to dry. There is a big reduction in jail and court expenses, and this means a corresponding increase in the economic welfare of the community.

PROHIBITION AND ITS "DEPLORABLE" RESULTS.

Very likely our readers have seen statements in the papers to the effect that prohibition in Des Moines, Iowa, had been "disastrous," etc. For their authority they quoted a Congregational minister. Of course the statement was marked "advertisement," but many people may not have noticed it. Well, as Dr. Kirby was for several years pastor of our own church here in Medina, I sent him the clipping and wrote him as follows:

DR. J. EDWARD KIRBYE, PLYMOUTH CHURCH, DES MOINES, IOWA.

My good friend Dr. Kirbye:—The enclosed explains itself. I presume likely you have seen the thing many times already, and have probably made some reply to it. Could you kindly send me something in print, or briefly otherwise, telling me how you came to furnish "ammunition" to the liquor people in the way that they have put it? I am sure there is some explanation, as is usually the case in the "facts" they present. Of course it is a paid advertisement. If it will save you time and trouble, you might reply briefly on the enclosed postal.

A. I. ROOT.

Very promptly came the following, penciled on a postal card:

It is a lie of the liquor interests. I said that the new chief of police was not enforcing law as well as the former, and more drunkenness was the result. I am the sworn enemy of the American sa-

loon, and have been fighting it in Des Moines as when in Medina. Prohibition is a success in Des Moines, when we have decent officials to enforce the law. They misrepresent me.

Frankfort, Mich., Aug. 4. J. E. KIRBYE.

The above is only a sample of the way these liquor people turn out when they are traced down. There is a pretty big moral prominently brought out in the above—the folly of having a chief of police *in sympathy* with the wets after you have voted for prohibition.

SALOONS HELP BUSINESS.

The liquor people urge, as you may know, that saloons help the business of a town; and we shall have to admit, I suppose, that some kinds of business are helped by saloons; and one of these lines of business is the jail business. See the following, which I clip from the *American Issue* in regard to two counties in Ohio:

Belmont County is wet and Hancock County is dry. An item in one of the Belmont County papers last week says there were 70 persons in the county jail. The same week Hancock County papers reported the jail in that county empty. Saloons boost jail business.

PROHIBITION DOES NOT PROHIBIT (?)

Some good friend has mailed us the clipping below, but he does not tell us what paper he took it from.

\$12,000 IN GOOD WHISKY COMES TO BAD END ON DUMP.

Denver's city dump at Thirty-first and Platte streets enjoyed a spree yesterday.

Last night it was "saturated." Whisky worth \$12,000, good whisky, and bad and indifferent, was poured into the ground.

The whisky came from five railroad depots. It

had all been consigned to G. D. Phillips, who until Monday had a "store" at 1704 Sixteenth Street. Phillips was fined \$150 in the county court Monday for violating the prohibition law, and the whisky "poured" at the dump tea party yesterday was his goods. The spilling was directed by police and sheriffs

It occurs to me that, after a few doses of medicine like the above, the guilty one will "sit up and take notice" that prohibition *does* prohibit.

NO PLACE FOR BOOZE IN THE GREAT FACTORIES OF OUR LAND.

The following, from the Methodist Temperance Board, explains itself:

THIS POSTER WAS TAKEN FROM THE SHOPS OF THE GIER PRESSED STEEL CO., LANSING, MICHIGAN.

Covered with machine grease, and mutilated by the tacks which held it to the wall, the original is in the office of the Board of Temperance of the Methodist Episcopal Church.

YOU CAN'T DRINK AND MAKE GOOD.

MODERN BUSINESS SETS PACE TOO FAST FOR DRINKING MAN'S MIND TO KEEP UP—HE IS NOT IN THE RUNNING.

Science Proves by Delicate Instruments of Precision that He Thinks, Sees, Hears, and Acts More Slowly than the Man Who Doesn't Drink.

Nothing will destroy the usefulness of a strong brain as quickly as alcohol. It is just as disastrous to man's delicate mental machinery as a handful of sand to the mechanism of a watch.

Bright business ideas, ambition, energy, and execution fade under the influence of alcohol like a dream, to be replaced by air castles, "large talk," laziness, sluggishness, and neglect.

HEALTH NOTES

SAVING THE BABIES; "GOD'S KINGDOM COMING."

Just now the whole wide world is, if I am correct, giving more attention toward protecting and saving the babies than ever before. Infantile paralysis is (*perhaps* provisionally) directing attention to the matter; and our best and ablest physicians as well as our professors and scientific men are giving it their best attention. Will they succeed in combating this terrible scourge? I take courage when I think how quickly the foot and mouth disease among our domestic animals was stamped out when our nation realized the damage the disease was likely to do. The way in which it had got started before our stockmen knew what the trouble was made it seem almost incredible that it should be so soon headed off. Well,

now, here is something of terrible significance that I copy from the *Ohio Messenger*:

Women have voted in New Zealand for twenty years. The lowest death rate for babies in the world is in New Zealand.

Women vote in Norway, Australia, Sweden, Denmark, and Finland. The next lowest death rates are in these countries.

What would become of this world of ours if it were not for the mothers? and has the world ever given them credit for what they have done and for what they are doing? Now, I am impressed in reading the above of two things. First, that the babies of this world are of infinitely more importance than all the domestic animals on the face of the earth; but I am afraid that even our United States of America have not in times past given them the thought and care that

they have given the cows, pigs, and chickens. The second thing that impresses me is that the mothers of the world have a better *right* to vote, and help in making laws, than any man who was ever born. May God bless the present movement to care for the babies, and also the wave of reform toward keeping temptation out of the way of the little ones when they get to be boys and girls.

"Suffer the little children to come unto me, and forbid them not, for of *such* is the kingdom of heaven."

HOW TO AVOID CONSUMPTION.

The medical adviser of the *Plan Dealer* recently gave a lot of such excellent advice, not only to those having a tendency toward consumption but to everybody else, that I take great pleasure in quoting from it as follows:

But even if your rooms be sunny, don't stay in them all the time. Get out of doors as much as you can. Outdoor work is vastly better than indoor work, especially if one's lungs are weak. On cold rainy days take special pains to keep the feet dry.

Breathe with deep long full breaths, so as to carry the fresh air to every corner of your lungs. Do this every day for several minutes in the morning, and at night with the windows open or while out of doors. Breathe thru the nostrils and not thru the mouth.

Next to fresh air good food is most important for the person who is liable to contract consumption. Spend your money for simple food—milk and eggs, good fresh meat, cereals, vegetables, bread and butter, and fruit.

Don't gorge yourself at every meal—that is likely to do you more harm than good. But eat heartily. Between meals drink milk if it agrees with you.

Live a regular life—get plenty of rest and sleep at regular periods as well as eating regularly.

A daily sponge or tub bath is good when followed by a brisk rub, preferably upon rising.

Above all, keep your courage up. Courage is one of the most important things in preventing or curing consumption. Remember consumptives can be helped and many are cured.

Among other things to be avoided if you would sidestep consumption are dirty shops and stores, overcrowded living and sleeping rooms, dirty saloons and dance halls, dusty kinds of business, and dusty, dirty air. All these things are bad for weak lungs.

Self-indulgence and intemperance are also very bad for the person trying to keep out of the clutches of consumption. Vice weakens the strong, kills the weak.

Then there is the evil of patent medicine. Even the patent medicines which claim to cure consumption are bad for weak lungs, because they contain a large amount of alcohol.

DR. WILEY IN REGARD TO DRUGS AND DRINKS.

We clip the following from the *Vindicator*. See if you cannot say amen to it—especially the closing paragraph.

ALCOHOL EVIL AND DRUG EVIL.

The Chicago *American* (a Hearst paper) quotes Dr. H. W. Wiley, at one time the great Chief Chemist of the Department of Agriculture, as having said in a recent lecture in Chicago that 60 per cent of

the young men who apply for enlistment in the United States army are rejected as physically unfit, and attributing that state of affairs to the use of "habit-forming drinks and drugs." The *American* says:

"Apart from the humanitarian reasons that have all along inspired opposition to injurious drinks and drugs, a new and powerful argument for social efficiency is having its effect.

"It was here that Dr. Wiley's lecture became most forcible.

"The American people can't afford to build and maintain jails, asylums, and poorhouses to take care of millions of human wrecks and their progeny ruined by drugs and drinks.

"They can't afford to have a poisoned heredity injected into the veins of the commonwealth.

"They can't afford to have a large per cent or any per cent of their young men so disabled that they can be of no service to their country, either in peace or war.

"This country, as a matter of incalculable self-interest, must defend itself against enemies which are all the more dangerous because they fly no banners and beat no drums. It must protect the birth, education, and development of every child born under the Stars and Stripes!"

RESUSCITATING DROWNED PEOPLE.

I clip the following from the *Florida Grower*:

Boy Scouts at Boynton proved the worth of their training by rescuing a seven-year-old boy who had fallen into a hole over his head. They plunged in and dragged him to the shore, and then were compelled to use artificial respiration for nearly thirty minutes before he recovered.

There are two points in the above that interest me. The first is, that the Boy Scouts are being taught what to do, and how to manage a drowning person. Secondly, this boy was brought to life after nearly thirty minutes of efforts with artificial respiration. It would be a most sad and serious thing if the friends should become discouraged and give up when there is still a possibility of resuscitation. I regret that they did not tell how long the boy was under water, for it is exceedingly important to know *how long* after submerging there is a possibility of recovery.

"HOW TO KEEP WELL AND LIVE LONG."

The *Christian Herald* gives us an excellent picture of Mrs. Louisa K. Theirs, who is now 102 years old; and the picture they give represents her as quite a good-looking old lady. We clip the following in regard to her:

Mrs. Theirs, when asked for a greeting to the *Christian Herald* readers, said:

"Let me say that I congratulate you on having lived to this day of wonders. If we have only 'picked up pebbles, while the ocean of truth lay all unknown before us,' still wonders have been brought to light.

"If you want to live long and enjoy life, make yourself useful to your fellowmen and cut your food down to the smallest possible quantity. In regard to myself, I can only say that God has been very good to me in giving me health, a long life, many friends, and blessings too numerous to mention."

HIGH-PRESSURE GARDENING

GROWING FIELD CORN IN FLORIDA.

I hold in my hand an ear of corn that is about the handsomest, all things considered, to me, of any ear of corn I ever got hold of. On page 627, July 15, I made mention of three or four ears on the stalk of corn in my Florida garden. I wrote Wesley, when it was hard enough to ship, to send me an ear by mail, and here it is. The seed was procured of the Kilgore Seed Co., Plant City, Fla. Here is what their catalog says about it:

CUBAN OR HAVANA YELLOW FLINT.

This corn will make under all kinds of adverse weather conditions. Small ears, small grain, and one of the hardest of all flint corn, and one that withstands weevils better than any other variety.

The corn is a deep yellow. The kernels are perfectly smooth, as hard as flint, and as shiny as if they had been varnished. It looks somewhat like our old-fashioned Yankée corn, but the kernels go rather deeper. If I understand it correctly, it is so extremely hard and flinty that the weevils cannot easily bite into it. The corn was planted after digging a very nice crop of potatoes. If we gave it any fertilizer at all, it was only a very little. The ground had been, for several seasons before, a part of our poultry-yard, and that probably explains why there are three and even four ears on a stalk. You will recall that Professor Rolf advised me to plant corn and Velvet beans after digging my potatoes. The Velvet beans were inoculated so they might gather nitrogen and benefit the ground. Now, the fact that I have succeeded in getting a fine crop of beautiful corn from the little piece of ground that had been a poultry-yard, or a part of one, does not amount to much. From a late issue of the *Manatee River Journal* I clip the following from a description of

A "500-ACRE CORN-FIELD."

Five hundred acres of corn in Manatee County, in one field, under one fence, and belonging to one firm, is the record up to date, so far as we have been able to learn.

We have seen many fields of from ten to forty acres, and have information that there are some containing seventy-five acres, and one or two of a hundred and fifty; but for a South Florida county to have one field with five hundred acres of good corn in it is somewhat of a revelation.

In much of this corn a fine stand of Velvet beans will be seen, the bean-runners very often covering the stalk so as to hide it entirely, and the ground a perfect mass of vines. The value of beans as a stock food is well known, and is also highly recommended as a cover crop.

At the estimated yield of forty-five bushels to the acre (and, mind you, that was a much lower estimate than that made by experienced corn-men from northern states, the crop would run twenty-two

thousand five hundred bushels; and at the price of ninety cents per bushel would bring to the owners the sum of \$20,250. In addition to this income, in a county where "they" say we can't raise corn, Scally & Knight will turn several hundred head of cattle on the fodder and grass to fatten for the market.

There is no mention in the above of the variety of corn used for this great corn-field. It may be the same as the corn I have just been talking about, the Cuban, or it may not. It is true that corn has been grown more or less in Florida for years past; but until just recently nobody seems to have discovered any such possibility as mentioned above; and I would warn people in the North, who think they can go down to Florida and raise corn like the above, and get such yields, that these are probably the exception, not to be secured except by an expert under the most favorable circumstances. When we can grow not only our own hay but our own corn down in Florida, without sending up to Ohio and away out west for it, we certainly are forging ahead.

Below is Wesley's report of my garden up to Aug. 3:

I am sending the ear of corn. It will not be ready to "house" before the first of September or last of August. The pieplants died during the month of June, as it was so hot. The Velvet beans have covered the whole place. We are having plenty of rain now. I keep the ditches all open so that the water doesn't stand on the place at all. The sweet potatoes are doing nicely. I keep all of the big weeds out of the Velvet beans.

Manatee, Fla., Aug. 3. WESLEY WELCH.

I am sorry to know our pieplants have died; but I was told when I planted them that they would not be likely to stand the summer, and that I would have to replace with new plants every fall. It seems clear that the Velvet bean interferes but little or none at all with the corn, but I was assured all around that such was the case. One reason Wesley speaks of the big weeds is because I found big weeds towering away up above my head the year before, right where that beautiful corn is now maturing.

POISON IVY; A REMEDY.

Mr. A. I. Root:—I notice under head of Health Notes, March 1, remedies for poison ivy, etc. I have accidentally learned that salty meat grease is a sure cure for poison ivy. Applied three times a day for two or three days, it always cures.

Montgomery, Ala., Mar. 6.

J. M. CUTTS.

Thanks, my good friend; but do not poison-ivy troubles usually "let up" in "two or three days," even if nothing is done but to let it alone?

Better Queens and Bees for Less Money

20 years of select breeding gives us bees and queens of highest quality---Queens for Honey production---Queens of unusual vitality---Queens that successfully resist European foul brood

Our select colonies for breeding purposes, larvae, and select drones are those of the highest standard, the choice of over 1000 hustling honey-producing colonies of pure Italian bees. These select colonies are located at such a distance from all other bees as to assure pure mating, and thus effective use of our select drones. The larva we use in grafting is as small as can be seen and handled, having just come out of the egg. These are placed in cells, which in turn are placed and nourished in strong ten-frame colonies, which, when honey is not coming in sufficiently, are heavily stimulated by feeding. Thus we get large well nourished cells, which in turn produce large, long-lived, and hardy queens that give workers unexcelled for honey production. We use no baby nuclei. All our queens are hatched and reared in strong three and five frame full-depth hives. Thus natural conditions are preserved, and the best queens produced.

Price List of Our Three-banded and Golden Italian Queens. Ready by Return Mail.

Untested.....50 cts. each or \$45.00 per 100	Tested.....\$1.00 each or \$ 90.00 per 100
Select Untested..65 cts. each or \$60.00 per 100	Select Untested..\$1.25 each or \$115.00 per 100

All queens are warranted purely mated. Wings clipped free of charge.

Price List of Our Swarms of Bees for Fall Increase.

1-lb. swarms with select queens..... \$1.75	2-lb. swarms with select queens..... \$2.50
3-lb. swarms with select queens..... \$3.50	5-lb. swarms with select queens..... 5.00

All orders filled at once, or as desired.

We have no disease of any kind. Satisfaction we always guarantee.

M. C. Berry & Company Hayneville, Alabama

Why Not Declare War?

against weak colonies, old queens, and diseases by buying and requeening with my young, vigorous, three-banded Italians. They are bred for honey and gentleness. 50 CENTS each; \$45 per 100. This is a first-class queen at a cheap price. Guaranteed to be as good as money can buy; to give perfect satisfaction, and reach you in first-class condition.

N. Forehand . . Fort Deposit, Ala.

DOOLITTLE & CLARK

Italian queens are what you want for fall requeening. Try them! Prices: \$1.00 each; \$5 for six; \$9 per dozen.

Marietta, New York

Please Notice Change of Prices of Leininger's Strain of Italians

We will sell untested Italian queens at 75 cts. each; six, \$4.50; tested, one year old, at 80 cts. each; six, \$4.80; tested, young, \$1.25; six, \$6.50. Breeders, \$10 each. We guarantee that all queens will reach you in good condition, to be purely mated, and give satisfaction.

Fred S. Leininger & Son . . Delphos, Ohio

Queens of MOORE'S STRAIN of Italians

PRODUCE WORKERS

That fill the super quick with honey nice and thick. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. Untested queens, 1, \$1; 6, \$5; 12, \$9; 100, \$65. Select untested, 1, \$1.25; 6, \$6; 12, \$11; 100, \$75. Safe arrival and satisfaction guaranteed. I am now filling orders by return mail.

Circular free.
Queen-breeder

J. P. MOORE,
Route 1, MORGAN, KY.

ITALIAN QUEENS

Untested remainder of the season 75 cts. each; \$4.25 for six; \$8.00 for 12. Tested, \$1.00 each in any quantity. Satisfaction in all cases or money refunded. Been breeding queens for sale for 25 years, and we know how.

L. H. Robey, Worthington, W. Va.

Italian Queens---Northern Bred

make extra hardy queens for Canada and Northern States. I reduce price on untested August and September, 75 cts. each; \$8.00 per dozen. Select tested, \$1.50. Write for prices on larger numbers and get my price list in full. Plans "How to Introduce Queens," and "Increase," 25 cts.

E. E. MOTT, Glenwood, Michigan

BEE SUPPLIES

Send your name for new 1916 catalog.
Dept. T, CLEMONS BEE SUPPLY CO.,
128 Grand Avenue, Kansas City, Mo.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—White-clover comb honey; extracted in 60-lb. cans. HENRY HETTEL, Marine, Ill.

FOR SALE.—White-clover extracted honey in 60-lb. cans, two cans to a case. ARTHUR NORBERG, Spring Valley, Ill.

NEW ORANGE-BLOSSOM HONEY.—Two 60-lb. cans, \$9.75. Sample bottle by mail, 10 cts. OTTO LUDENDORFF, Visalia, Cal.

Clover honey, extracted, in 60-lb. cans; comb in 4 1/4 x 1 1/4 sections. Write for prices, etc. E. L. LANE, Trumansburg, N. Y.

Choice new-crop white-clover extracted honey in new 60-lb. tin cans, the bargain of the season; sample, 10 cts. D. R. TOWNSEND, Northstar, Mich.

New well-ripened clover extracted honey in new 60-lb. cans at 9 cts.; sample, 10 cts. CARL H. J. BAUMBACH, Fall Creek, Wis.

FOR SALE.—A1 sweet-clover honey in 60-lb. cans, two cans to a case, 7 1/2 cts. per lb., f. o. b. cars. JOE C. WEAVER, Cochrane, Ala.

FOR SALE.—Thick, well-ripened white-clover ext. honey in 60-lb. cans at 9 cts. per lb. Orders filled promptly. HOWARD HONEY CO., Tyre, Mich.

FOR SALE.—Fine quality raspberry-clover-milkweed blend of honey in new 60-lb. cans (two in case). Write for sample and price. P. W. SOWINSKI, Bellaire, Mich.

FOR SALE.—Extra-quality white-clover honey, 8 1/2 cts. by the case of two 60-lb. cans. Ten or more cases, 8 cts. Six-pound can, postpaid, in second zone, \$1.00. EARL RULISON, Rt. 1, Amsterdam, N. Y.

Write to O. H. Schmidt, Rt. 5, Bay City, Mich., for prices if you wish to obtain unexcelled extracted clover honey in small or quantity lots in various containers. Do it now.

FOR SALE.—Best quality white-clover extracted honey in new 60-lb. cans, 2 cans per case. State how much you can use, and I will quote you price. L. S. GRIGGS, 711 Avon St., Flint, Mich.

FOR SALE.—Clover honey (1916 crop), excellent quality, in new 60-lb. cans; also 5-lb. and 10-lb. pails. Sample, 10 cts. May be deducted from first order. DODDS' APIARY, Cambridge, N. Y.

FOR SALE.—Raspberry, basswood, No. 1 white comb, \$3.00 per case; fancy, \$3.25; 24 Danz. sections to case; extracted, 120-lb. cases, 9 cts. per lb. W. A. LATSHAW CO., Clarion, Mich.

New clover honey; comb runs from No. 1 to fancy, \$3.50 per case; No. 2, \$3.00 per case of 24 sections, six cases to carrier; extracted clover, 9 cts., two 60-lb. cans to case. H. G. QUIRIN, Bellevue, O.

RASPBERRY HONEY.—Thick, rich, and delicious. Put up for sale in 60-lb. tin cans. Price \$6.00 a can. Sample by mail for 10 cts., which may be applied on any order sent for honey. Write for price on large lots. ELMER HUTCHINSON, Rt. 2, Lake City, Mich.

FOR SALE.—Choice New York State clover honey in 60-lb. cans, two in a case, at 7 1/2 cts. per lb., f. o. b. Delanson, N. Y. FRANK C. ALEXANDER.

FOR SALE.—Clover honey of finest quality in new 60-lb. cans at 8 1/2 cts. per lb. Also fancy and No. 1 clover comb honey, 4 1/4 x 1 1/4 sections. MARTIN CARSMOE, Ruthven, Iowa.

FOR SALE.—Beautiful white-clover extracted honey, left upon the hives until after the close of the season before extracting, then put up in new 60-lb.-net tin cans. The fact is, we have studied out a system of extracted-honey production whereby exquisite quality is secured at the expense of quantity. Just a little more money will buy this rich, rosy, well-ripened stock than is required to buy "just ordinary" stock. Inclose 10 cts. in stamps for a large sample that costs us 25 cts. to send, and be convinced of the superior quality of this stock. Address the BEEKEEPERS' REVIEW, Northstar, Mich.

HONEY AND WAX WANTED

WANTED.—Honey in carlots or less. Send sample. O. N. BALDWIN, Baxter, Kan.

WANTED.—Comb, extracted honey, honey-dew, and beeswax. W. A. LATSHAW CO., Clarion, Mich.

WANTED.—Comb and extracted honey, in car lots and less carlots. J. E. HARRIS, Morristown, Tenn.

Beeswax bought and sold. STROHMAYER & ARPE CO., 139 Franklin St., New York City.

WANTED.—Honey-extractor, frames 11 1/4 x 17. G. F. TUBBS, Springfield Center, N. Y.

WANTED.—Comb honey; fancy and No. 1 qualities; 4 1/4 square by 1 1/4 sections preferred. Also white extracted honey, carload or less; quality. HOFFMAN & HAUCK, Richmond Hill, N. Y.

FOR SALE

Get our new Rubber Stamp and Label Catalog. ACME PRINTING CO., Medina, Ohio.

HONEY LABELS.—Most attractive designs. Catalog free. EASTERN LABEL CO., Clintonville, Ct.

SEND TODAY for samples of latest Honey Labels. LIBERTY PUB. CO., Sta. D, box 4-E, Cleveland, Ohio.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—165-lb. honey-kegs at 55 cts., f. o. b. factory. N. L. STEVENS, Venice Center, N. Y.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

FOR SALE.—Cedar or pine dovetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

FOR SALE.—Medium-brood foundation, 1 to 10 lbs., 52 cts. per lb. Up to 25 lbs., 50 cts. Up to 50 lbs., 48 cts.; 100 lbs., 48 cts., prepaid in La. Root's goods for sale. Beeswax wanted; 25 cts. cash, 26 trade. J. F. ARCHDEKIN, Bordlonville, La.

THE ROOT CANADIAN HOUSE, 185 Wright Ave., Toronto, Ont., successors to the Chas. E. Hopper Co. Full line of Root's goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and other bee-journals; Prairie State incubators. Get the best. Catalog and price list free.

PATENTS

PATENTS THAT PAY: \$625,812.00 clients made. Protect your idea. Send data. Advice and two wonderful Guide Books free. Highest reference. E. E. VROOMAN & Co., 834 F., Washington, D. C.

REAL ESTATE

FOR SALE.—A nice twenty-acre farm with 100 swarms of bees, and large ginseng-beds; also 4800 pounds of extra-nice raspberry-clover honey.

L. FRANCISCO, Mosinee, Wis.

A small farm in California will make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Hospitable neighbors. Good roads, schools, and churches. Write for our San Joaquin Valley illustrated folders free.

C. L. SEAGRAVES, Industrial Commissioner A. T. & S. F. R'y, 1934 R'y Exchange, Chicago.

VIRGINIA AND NORTH CAROLINA FARMS, \$15 per acre and up. Easy payments. Fruit, dairy, stock; climate, schools, churches, roads, markets, and neighbors of the best. Get our Farm Lists, Magazine, and other interesting literature, all free. Address F. H. LABAUME, Agr. Agt. N. & W. Ry., 246 N. & W. Bldg., Roanoke, Va.

For sale in the Okanagan Valley, British Columbia, Canada, ten-acre lot, surrounded with orchard, apiary of 50 hives, supers, etc., extractor, honey-house, bee-cellar, 10-room house with furniture; large barn, one horse, two sets harness, buggy, democrat, cutter, bobs, workshop, hen-house, woodshed, 12 cords firewood; no mortgage; dry climate; plenty irrigation; with crop; instant entry. \$5000 cash. Address "MANAGER,"

V Glenaiva Apiary, Lavington, B. C., Can.

WANTS AND EXCHANGES

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHRIVER, Boise, Idaho.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list. JAY SMITH, 1159 De Wolf St., Vincennes, Ind.

Nice Italian queen bees for 75 cts. each; six for \$4.00. J. B. CASE, Port Orange, Fla.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 84 Cortland St., New York.

FOR SALE.—Untested golden Italian queens, 60 cts. J. F. MICHAEL, Winchester, Ind.

Rhode Island northern-bred Italian queens, \$1. Circular. O. E. TULIP, Arlington, R. I.

Golden-all-over-queens of quality. Untested, 75 cts.; tested, \$1.50. A. O. HEINZEL, Rt. 3, Lincoln, Ill.

Fine three-banded Italian queens. Circular and price list free. J. L. LEATH, Corinth, Miss.

FOR SALE.—Italian queens; untested, 50 cts. each. E. A. SIMMONS, Greenville, Ala.

FOR SALE.—200 colonies bees, first-class location. J. B. MARSHALL, Big Bend, La.

FOR SALE.—No better Italian queens; one, \$1.00; six, \$5.00. J. W. ROMBERGER, St. Joseph, Mo.

MUST SELL.—40 colonies highest bidder. Write E. E. COLIEN, Manawa, Wis.

Bright Italian queens for sale at 50 cts. each. Safe arrival and satisfaction guaranteed.

H. K. TURNER, Rt. 4, Greenville, Ala.

Five hundred dandy leather-banded Italian queens for September, at 50 cts. each. No better. J. H. HAUGHEY, Queen-breeder, Berrien Springs, Mich.

Bright Italian queens at 60 cts. each; \$6.00 per doz.; \$50 per 100. Safe arrival and satisfaction guaranteed. W. W. TALLEY, Rt. 4, Greenville, Ala.

Italian queens bred for their honey-gathering qualities. One, \$1.00; six, \$5.00.

EDITH M. PHELPS, Binghamton, N. Y., East End.

FOR SALE.—Three-banded Italian queens, no disease. Tested, \$1.00; untested, 75 cts.; 6 for \$3.75. MISS BIRDIE CULBERSON, Rt. 2, Siler City, N. C.

ITALIAN QUEENS—Golden or leather colored; 75 cts. each; \$4.25 for 6; \$8.00 per doz. Tested, \$1.50. NORDLING APIARIES, Button Willow, Kern Co., Cal.

FOR SALE.—Thirty colonies of bees in ten-frame hives; also thirty acres of level farm land, new buildings. CLIFFORD ANDERSON, Rt. 4, Conneaut, O.

Golden and three-banded Italians; 1 untested, 85 cts.; 6, \$4.80; 1 tested, \$1.25; 6, \$7.20. Satisfaction guaranteed. Bees, \$1.25 per lb.

D. L. DUTCHER, Bennington, Mich.

Southwest Virginia five-banded Italian queens, the fancy comb-honey strain, gentle to handle. They will please you. Try one. \$1.00 each.

HENRY S. BOHON, Rt. 3, box 212, Roanoke, Va.

FOR SALE.—Golden Italian queens, select tested, \$1.25; tested, \$1.00; untested, 60 cts. each; dozen, \$7.00; select untested, 70 cts.; dozen, \$8.00; no foul brood. D. T. GASTER, Rt. 2, Randleman, N. C.

Fine three-banded untested Italian queens, northern bred, each 80 cts.; ten for \$7; fifty for \$30. Safe delivery guaranteed. M. H. HUNT, & SON, N. Cedar Ave., Lansing, Mich.

H. C. Short, queen-breeder, formerly of Winchester, O., is now with W. D. Achord, Fitzpatrick, Ala. We will appreciate the patronage of Mr. Short's customers.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. WM. S. BARNETT, Barnetts, Va.

FOR SALE.—25 colonies of bees, good shape; 50 empty hives, some never used; 75 shallow extracting supers. No disease. The lot to go cheap.

S. R. CHAFFEY, Marion Station, Md.

FOR SALE.—200 colonies bees for sale, with 78 2/3 acres splendid land; 50 acres tillable. Ideal location. Will sell separate.

J. B. MARSHALL, Big Bend, La.

Golden Italian queens by June 1. Untested queens, 75 cts. each, or \$8.00 per doz.; tested, \$1.25 each or \$12 per doz. Purely mated. Guaranteed. Send for circular. J. I. DANIELSON, Rt. 7, Fairfield, Ia.

Extra select untested golden and three-banded Italian queens, 50 cts. each; 6 for \$2.95; 12 for \$5.75. Satisfaction guaranteed.

G. H. MERRILL, Pickens, S. C.

FOR SALE.—350 strong colonies with extracting and comb equipment; unlimited range; continuous flow; water-white honey; no disease.

J. O. BAIRD, Rt. 1, Haines, Oregon.

MILLER'S STRAIN OF ITALIAN QUEENS.—Still on the map with a few choice untested queens. One untested, 75c; 6, \$4.00; 1 sel. unt., \$1.00; 6, \$5.00.

I. F. MILLER, 1214 Ozan St., Pittsburg, Pa. Formerly of Brookville, Pa.

FOR SALE.—600 colonies well-kept bees. All modern equipment. Write

WM. CRAVENS, Rt. 7, San Antonio, Tex.

Three-banded Italian queens; 1, \$1.00; 6, \$5.00; 12, \$9.00; Moore's strain. Satisfaction guaranteed. F. L. JOHNSON, Mt. Airy, N. C.

Vigorous, prolific Italian queens, \$1; 6, \$5. My circular gives test methods of introducing. A. V. SMALL, 2302 Agency Road, St. Joseph, Mo.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnetts, Va.

Large well-bred three-band Italian queens by return mail; 1, \$1.00; 6, \$5.00; 12, \$9.00; guaranteed purely mated, select tested, \$1.50; full colonies, 10-frame, \$8.00; 8-frame, \$6.00, queen included. S. G. CROCKER, JR., Roland Park, Md.

HOLLOPETER'S strain of hustling three-banded Italian queens by return mail at 75 cts. each; 6, \$4.00; 12, \$8.00; 25, \$15.00. Tested queen free with each order for 12 or more untested queens. Satisfaction given. J. B. HOLLOPETER, Pentz, Pa.

Golden Italian queens, bred strictly for business, that produce a strong race of honey-gatherers. Untested queens, 75 cts. each; \$8.00 per dozen; \$60 per 100. Prompt service and satisfaction guaranteed. L. J. DUNN, box 3383, Rt. 6, San Jose, Cal.

FOR SALE.—Fifty colonies of bees in 10-frame L. hives, combs built on full foundation; 120 Danz. comb-honey supers; 1 Cowan 2-frame extractor; 8 Holtermann winter cases; a lot of bee-books, etc. FRANCIS W. GRAVELY, Stockton, Va.

GRAY CAUCASIANS.—Early breeders, great honey-gatherers; cap. beautifully white; great comb-builders; very prolific; gentle; hardy; good winterers. Untested, \$1; select untested, \$1.25; tested, \$1.50; select tested, \$2.00. H. W. FULMER, Andalusia, Pa.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; one-frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit for stamp. THE DERBY TAYLOR Co., Newark, N. Y. (formerly Lyons).

Carniolan, golden, and three-banded Italian queens. Tested, \$1.00; untested, 75 cts.; 6, \$4.20; 12, \$7.80. ½ lb. bees, 75 cts.; 1 lb., \$1.25; nuclei, per frame, \$1.25. No disease; everything guaranteed. Write for price list. C. B. BANKSTON, Buffalo, Leon Co., Tex.

My bright Italian queens will be ready to ship April 1, at 60 cts. each; virgin queens, 30 cts. Send for price list of queens, bees by the pound, and nucleus. Safe arrival and satisfaction guaranteed. M. BATES, Rt. 4, Greenville, Ala.

FOR SALE.—Three-banded, hardy, northern-bred Italian queens, bred from the best honey-gatherers obtainable. Untested, \$1.00; select tested with wing clipped, \$3.00; also Goldens and Carniolans at same prices. F. L. BARBER, Lowville, N. Y.

See our large advertisement elsewhere. Why pay more when you can get from us better queens for less money? We guarantee our queens to be as good as any produced North, South, East, or West. Try them. M. C. BERRY & Co., Hayneville, Ala.

Maine-reared Italian queens, leather-colored, gentle. Hardy, hustlers. Untested, 75 cts.; select untested, \$1.00; tested, \$1.25; select tested, \$1.50 to \$2.00. No disease. Satisfaction guaranteed. A. J. SEAVEY, Rt. 2, Farmington, Maine.

FOR SALE.—Three-banded Italian queens and bees from the best honey-gathering strains obtainable. Untested queen, 75 cts.; 6, \$4.25; 12, \$8.00; tested queens, \$1.25; 6, \$7.00; 12, \$12.00. For select queens add 25 cts. each to the above prices. For queens in quantity lots, or bees by the pound, write for prices. ROBT. B. SPIDER, Rt. 181, Wharton, N. J.

My Breeder, a daughter of one of Dr. Miller's best queens, is proving superior to any I have been able to procure. Daughters of this queen, untested, 75 cts. each; \$8.00 per doz.

J. I. BANKS, Dowlstown, Tenn.

GOLDEN ITALIAN QUEENS.—Bred from a strain of great honey-gatherers, gentle and prolific. Untested, one, 75 cts.; 6, \$4.25; 12, \$8.00; 50, \$32.50; 100, \$60.00. All orders promptly filled and safe arrival guaranteed. L. J. PFEIFFER, Rt. 15, Los Gatos, Cal.

Choice Italian, Carniolan, or Caucasian queens; Untested, 75 cts.; tested, \$1.25; breeding queens, \$2.50; virgins, 40 cts. each; 3 for \$1.00. Immediate delivery. C. W. FINCH, 1451 Ogden Ave., Chicago, Ill. Phone Haymarket 3384.

Queens for requeening. Best on market. One untested, \$1.50; 12, \$12.00; one tested, \$2.00; 12, \$18.00; one select tested, \$3.00; 12, \$24.00. Special low price on 50 or more. Write. Safe delivery and satisfaction guaranteed. THE J. E. MARCHANT BEE & HONEY CO., Canton, O.

The Stanley Improved Cell-starting Hive and Queen-rearing Outfit, complete, \$5.00. The same with a choice breeder, \$6.00. Warranted Italian queen, 60 cts. each. Tested, \$1.00. Virgin, 25 cts. Choice breeding queens, \$2.25. ARTHUR STANLEY, 1907 Washington Blvd., Chicago, Ill.

TENNESSEE-BRED QUEENS! My three-band strain that has given such universal satisfaction for over 40 years. Orders filled promptly or money returned by first mail. 1000 nuclei in use. Tested, in June, \$1.75; untested, \$1.00; in July, \$1.50 and 75 cts. Postal brings circular.

JOHN M. DAVIS, Spring Hill, Tenn.

QUEENS.—From a strain of Italians, wintered for thirty years in the foothills of the Adirondack Mountains out of doors. Hardy, gentle, industrious, and fine resisters of disease. \$1.00 each, or \$9.00 per dozen; also nuclei and full colonies.

CHARLES STEWART, box 42, Johnstown, N. Y.

PHELPS' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; 6, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SONS, Wilcox St., Binghamton, N. Y.

BY RETURN MAIL.—Young tested queens, \$1.00; \$12.00 per dozen; untested, 75 cts.; \$7.00 per doz. We breed the three-band Italians only, and we breed for the best. We have never had a case of foul brood in our apiary, and we guarantee every queen sent out by us. J. W. K. SHAW & Co., Loreauville, La.

QUEENS.—Improved three-banded Italians, bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Rt. 3, Williamstown, Ky.

NOTICE TO HONEY-PRODUCERS.—We will send by return mail three-banded Italian queens at 50 cts. each. Lots of 25 or more, 45 cts. each. A choice lot of select tested at \$1.00 each; 25 or more, 75 cts. each. No disease. Safe arrival guaranteed.

MARCHANT BROS., Union Springs, Ala.

FOR SALE.—One hundred colonies of bees in fine shape, free from all disease, and fine location; equipped for comb honey. Started in spring with sixty colonies, and have taken off 5000 lbs. white-clover honey; have increased 100. Reason for selling, I want to change to California.

J. H. HALL, 1828 Cypress, Kansas City, Mo.

Famous Howe's, Root's, Moore's, Davis' select strain of honey-gatherers, disease-resisting. None better for all purposes. Untested, one, 75 cts.; doz., \$7.50. Select untested, one, \$1.00; doz., \$9.00; ½ doz., \$5.00; tested, \$1.25; doz., \$10; select tested, one, \$1.50; ½ doz., \$8.00; extra select, \$2.00. Bees by the pound, \$2.50 with queen. Honey crop short. Will have plenty of bees in June.

H. B. MURRAY, Liberty, N. C.

PURE ITALIAN QUEENS.—Golden or three-banded by return mail. All queens are warranted purely mated. They are large and long lived. They have proven themselves highly disease-resistant in many localities. One select untested, \$1.00; 6, \$.425; 12, \$.800; 100, \$60.00. Tested, \$1.25. Bees by the pound, nuclei, colonies. Safe arrival and satisfaction I guarantee. Circular free.

J. E. WING, 155 Schiele Ave., San Jose, Cal.

The bargain of the season—listen: *The Beekeepers' Review* to new subscribers is \$1.00 per year. Ten three-banded Italian untested queens at 50 cts. each would be \$5.00. *The Review* for the last four months of this year would be 33 cts., total \$6.33. Send us \$5.00 for the *Review* 16 months, beginning with the September number, and receive 10 untested queens, mailed you direct from our breeder in Mississippi. To get this exceptional bargain, address all orders to *The Beekeepers' Review*, Northstar, Mich.

BEES FOR SALE.—120 colonies Italian bees, located in one of finest honey belts in the U. S., in the heart of the great Salt River Valley, under famous Roosevelt Dam, six miles from Mesa, Arizona; entirely surrounded by miles of alfalfa. Equipped with fine queens, ten-frame Langstroth hives, combs of full-sheet foundation, queen-excluders, supers, and all latest improvements; honey-house, extractor, and accessories included free. A snap at \$6.00 per colony—less than total original cost, not considering location and bees. An excellent chance to locate and expand in a great up-to-date farming country with a remarkable future. I am permanently located in Chicago, and must sell at once. Only those who mean business write at once for interview or further particulars.

J. EARL PETERSON,
S. A. E. House, Evanston, Ill.

HELP WANTED

WANTED.—Young man to work with bees and poultry; some experience required. Must be temperate and willing to work. Steady employment if satisfactory. E. L. LANE, Trumansburg, N. Y.

Special Notices by A. I. Root

GOOD BOOKS AT A BARGAIN.

In our issue for June 15 I gave you a list of books that had got to be somewhat out of date. Quite a lot of them have been sold, but there are a good many of them left yet. We cannot very well reduce the prices any further on most of them, because quite a few at the low price I gave (five and ten cents) only a little more than cover the postage. I find that what is left of "The New Agriculture," a \$2.00 book, most of them are more or less damaged by having the covers get wet by an accident. The reading-matter is just as good, however; but in view of the damaged covers we make the price from now on 50 cents, postage paid.

DR. BIGELOW ELECTED SCOUT NATURALIST.

The managers of the Boy Scouts of America have elected Dr. Edward F. Bigelow, of Sound Beach, Ct., "Scout Naturalist." He will guide the great and growing organization of boys in their nature studies, answer questions, and conduct a department entitled "On Nature's Trail" in *Boys' Life*, the official monthly publication of the Boy Scouts. Their magazine has already attained a circulation of more than 100,000.

Be Efficient in BEE CULTURE

Grasp the experience of others in beekeeping by reading the best that has been published. The pamphlets and books listed below compel interest. Place a X in the margin opposite the publication wanted.

- ☐ **THE DEVELOPMENT OF THE APPLE FROM THE FLOWER.** By O. M. Osborne. Here's the latest scientific information about why apple blossoms can not do without bees. Free.
- ☐ **MY FIRST SEASON'S EXPERIENCE WITH THE HONEYBEE.** By "The Spectator," of the *Outlook*. A leaflet humorously detailing the satisfaction of beekeeping. Free.
- ☐ **CATALOG OF BEEKEEPERS' SUPPLIES.** Our new complete catalog, mailed free to any address on request.
- ☐ **THE BEEKEEPER AND FRUIT-GROWER.** Do you know that bees are necessary in modern fruit culture? This 15-page booklet tells how beekeeping is doubly profitable to the fruit-grower. Free.
- ☐ **SPRING MANAGEMENT OF BEES.** The experience of some successful beekeepers on solving this perplexing problem. Price 10 cents.
- ☐ **THE USE OF HONEY IN COOKING.** Just the thing for the up-to-date housewife. Price 10 cents.
- ☐ **BEES AND POULTRY,** how they work together profitably for others—why not for you! Some valuable pointers on hens and honeybees. Free.
- ☐ **HOW TO KEEP BEES.** A book of 228 pages detailing in a most interesting manner the experiences of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- ☐ **THE A B C OF BEE CULTURE.** A standard encyclopedia on bees. The largest and most complete published anywhere. 712 pages, fully illustrated. \$2.00 postpaid.
- ☐ **WINTERING BEES.** A digest of all the information on the subject. Thoroughly modern and practical. Price 10 cents.
- ☐ **THE BUCKEYE HIVE**, or the management of bees in double-walled hives. Will interest the amateur especially. Illustrated. Price 10 cents.
- ☐ **SWEET CLOVER,** the all-around forage crop. Just off the press. Investigate this astonishing plant. Free.
- ☐ **ADVANCED BEE CULTURE.** A summary of the best ideas of experts in apiculture. The book is beautifully printed and bound. 205 pages. Cloth. \$1.00 postpaid.

Be sure that the following coupon is carefully filled out.

The A. I. Root Company, Medina, Ohio.

Please send me the items checked above.

I enclose \$.....to cover the cost.

Name

Street Address or R. F. D.

Town

State

QUEENS AT 50c

These queens are guaranteed to be as good as money can buy. They are bred by the same and with the care as the high-priced ones. They are bred from imported mothers, the best in the world, and will produce bees that are the best for honey-gathering, gentleness, and not inclined to swarm.

	1	6	12	25	50	100
Warranted . . . . .	.50	3.00	6.00	11.75	22.50	43.75
Select untested . . . . .	.65	3.50	6.75	12.50		
Tested	1.00	5.50	10.00			
Select tested	1.50	8.50	16.00			

We guarantee that all queens will reach you in good condition, to be purely mated, and to give perfect satisfaction.

All orders filled at once.

L. L. FOREHAND, Fort Deposit, Ala.



Prices Reduced for . . . Rest of Season

For resisting foul brood no bee can be found that will excel ours. Requeen now while you can get them cheap.

Three-banded and Golden Italian

Untested queens	75c
Tested,	\$1.00
Selected,	2.00

W. J. Littlefield, Little Rock, Arkansas
Box 582

HONEY-JARS

No. 25 one-pound screw-cap honey-jars, one gross to a crate, \$4.75; two-dozen cases, \$5.25 gross. We have several styles of jars, cartons, and shipping cases. Italian bees and queens. Catalog free.

I. J. STRINGHAM, 105 PARK PLACE, N. Y.
Apiaries: Glen Cove, L. I.

3 Garden Tools in 1

The **BARKER** Weeder, Mulcher and Cultivator

The only garden tool that successfully, in one operation, kills weeds, and forms a complete soil mulch to hold moisture. "Best Weed Killer Ever Used." A boy with a Barker beats ten men with hoes. Has shovels for deeper cultivation. Self-adjusting. Costs little. Write for illustrated folder and special Factory-to-User offer.

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To see birds, hear their music, and taste honey are a happy trio. . . .

There is a new and enlarged
Bird Department
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Send twenty-five cents for a four-months' trial subscription.

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By All Means Buy a Good Veil

Muth's Ideal Bee-veil, postpaid 75c;
with other goods, 70c.

OLD COMB AND CAPPINGS rendered into wax with our hydraulic wax-press. Perfect work. We buy your wax at highest market price. Write us.

THE FRED W. MUTH CO.
204 Walnut Street Cincinnati, Ohio

TRADE NOTES

SECOND-HAND HONEY-CANS.

Those in need of cans for extracted honey will do well to consider the choice second-hand cans which we have to offer. We save only the best, and repair any boxes which need repair. The cans are free from rust inside, and rarely have any trace of rust outside. They are really good enough for choice honey. The price is \$4.00 for 10 cases of 2 cans each; \$8.50 for 25 cases, or \$30 for 100 cases. We have a supply at Philadelphia; also in New York, at same price.

CARTON AND LABEL ORDERS.

Notwithstanding the two advances in prices of cartons and labels the demand is phenomenal, and we are somewhat behind on orders. In order to take more prompt care of orders for goods in this line we are installing a new automatic self-feeding printing-press with a capacity of 3600 impressions per hour. With this to help out we hope to catch up, and also take care of future orders more promptly.

SHIPPING-CASES AT BARGAIN PRICES.

We call attention to a list of shipping-cases offered at bargain prices and prompt shipment. The list is found on the first inside cover page of this issue. We have the following to add to this list, all in stock at Chicago, Ill. We also list some bargains in glass honey-packages no longer listed in our catalog.

- 5 crates, 50 each, 12-lb. cases for $4\frac{1}{4} \times 1\frac{3}{8}$ sections, \$4.00 per crate.
- 35 crates, 10 each, 12-lb. cases for $4\frac{1}{4} \times 1\frac{3}{8}$ sections, 85 cts. per crate.
- 3 crates, 50 each, 16-lb. cases for $4\frac{1}{4} \times 1\frac{3}{8}$ sections, \$4.50 per crate.
- 7 crates, 10 each, 16-lb. cases for $4\frac{1}{4} \times 1\frac{3}{8}$ sections, 90 cts. per crate.
- 7 crates, 10 each, 12-lb. cases for $4\frac{1}{4} \times 1\frac{1}{2}$ sections, 85 cts. per crate.
- 1 crate, 50 each, 12-lb. cases for $4 \times 5 \times 1\frac{3}{8}$ sections, \$4.00 per crate.
- 12 crates, 50 each, 15-lb. cases for $4 \times 5 \times 1\frac{3}{8}$ sections, \$4.00 per crate.
- 9 crates, 10 each, 15-lb. cases for $4 \times 5 \times 1\frac{3}{8}$ sections, 85 cts. per crate.
- 4 crates, 10 each, 12-lb. Safety cases for $4\frac{1}{4} \times 1\frac{3}{8}$ sections, with cartons at \$1.20 per crate.
- 5 cases 2 doz. No. 25 jars, porcelain top, at \$1.00 per case.
- 7 cases, 2 doz. 1-lb. Hershisser square jars, nickel top, at \$1.30 per case.
- 1 case, 12 doz. 1-lb. Hershisser square jars, nickel top, at \$7.00 per case.
- 8 cases, 2 doz. $\frac{1}{4}$ -lb. Hershisser square jars, nickel top, at 80c per case.
- 2 cases, 12 doz. $\frac{1}{4}$ -lb. Hershisser square jars, nickel top at \$4.50 per case.
- 1 case, 12 doz. $\frac{1}{2}$ -lb. round Hershisser jars, nickel top at \$5.00 per case.
- 15-oz. Octagon jars with screw cap in crates $3\frac{1}{2}$ gross offered at \$4.25 per gross.
- 3 2-3 gross of $\frac{1}{2}$ -lb. square jars with cork at \$3.75 per gross.
- $\frac{1}{2}$ gross of 1-lb. square jars with cork at \$4.75 per gross.
- 90 3-gallon cans at 25c each.
- 12 5-gallon round wood jacketed cans at 50c each.

GLASS HONEY-PACKAGES ADVANCED.

Increased cost of materials affects glassware to such an extent that we are obliged to announce higher prices on the various glass packages listed in our catalog. The taper-panel jars are advanced 10 cts. a case, making the new price for $\frac{1}{2}$ -lb., 90 cts. per case; 6 cases, \$5.10; 1-lb., \$1.10 per case; \$6.30 for 6 cases. The round Federal and Tiptop jars are also advanced 10 cts. per case, making the new prices as follows:

- Federal jar, \$1.20 per case of 2 doz.; 6 cases, \$6.90
- 15-oz. round jar, 95 cts. per case of 2 doz.; 6 cases \$5.40.
- 16-oz. round jar, \$1.00 per case of 2 doz.; 6 cases, \$5.70.
- $\frac{1}{2}$ -lb. Tiptop jar, \$1.10 per case or \$5.50 per crate of 1 gross.
- 1-lb. Tiptop jar, \$1.20 per case or \$6.00 per crate of 1 gross.

$6\frac{1}{2}$ -oz. tumbler, \$1.00 per case of 4 doz.; \$7.50 per bbl. of 40 doz.

TIN HONEY-PACKAGES.

New quotations received on tin cans and pails are very much in advance of former prices. We are fortunate in having a supply of 5-gallon cans, bought before the advance, so we can continue for some time yet furnishing these cans at the present list price. We are obliged to name higher prices on the friction-top cans and pails for shipment direct from Chicago or Baltimore as follows:

- 2-lb. can, 500 to crate, \$16.00 per crate; 90 cts. per case of 24.
- $2\frac{1}{2}$ -lb. can, 462 to crate, \$17.00 per crate; \$1.05 per case of 24.
- 3-lb. can, 420 to crate, \$18.00 per crate; \$1.20 per case of 24.
- 5-lb. pail, 200 to crate, \$13.00 per crate; \$1.00 per case of 12.
- 5-lb. pail, 50 to crate, \$3.75 per crate.
- 10-lb. pail, 100 to crate, \$10.50 per crate; 80 cts. per case of 6.
- 10-lb. pail, 50 to crate; \$5.50 per crate.

REGULAR AND SAFETY SHIPPING-CASES.

Because of the great increase in the cost of paper in all forms we find it necessary to advance prices of the regular 24-lb. shipping-case \$1.00 per 100, and of the safety cases, including safety cartons, \$4.00 per 100. In 100 24-lb. cases there are 2400 safety cartons. The price of these cartons is advanced \$1.50 per 1000, which makes the increase for cartons alone \$3.60 per 100 cases. There is, besides, the drip paper and corrugated pads, which are now costing considerably more. These pads cannot well be dispensed with. In fact, where cartons of some kind are not used, there should be divisions in the case to protect the comb honey properly for safe shipment.

THE A. I. ROOT CO., Medina, Ohio.

AN ANNOUNCEMENT.

It has been the dream of beekeepers for many years to have honey so widely and thoroughly advertised that it would become an article of common everyday household use. This dream is now crystallizing into substantial form. The United Honey Producers is arranging to have the food value of honey and domestic use taught in the schools of the United States. Obviously there is no quicker way to popularize it than to educate our future housekeepers to use it in the best manner.

The school officials have been asked if they would assist in this, and in almost every instance they have agreed to do so if suitable bulletins are supplied to the schools by the beekeepers. The United Honey Producers is arranging to do this, and will print them in quantities to supply all the schools.

This is a grand opportunity; and, as the editor of the *Western Honeybee* declares, "A grand idea, and no one interested in the production of honey can afford not to endorse it."

We will take it for granted that you do endorse it; but we want you to say so. Write to your vice-president or to the secretary, and tell him so. It is planned to have one or more beekeepers in each county, and more when possible, to represent the United Honey Producers, and be ready when called on to give simple demonstrations before the pupils, to supplement the instruction, and for other necessary work in connection with the United Honey Producers.

This is a matter of general importance, as well as personal advantage to the county members, as it will bring liberal compensation to them in the way of prestige as representatives of the National organization. For the present these positions will be filled by volunteers. Later they will be elective or be appointed.

The United Honey Producers will specialize on this policy, and concentrate its efforts in pushing it to a successful culmination. When its present plans are successfully realized, it will take up some other things that are needed and carry them out. The discipline and organization that this campaign will bring will make possible other things.

Detailed information can be obtained by writing to your vice-president or to the secretary.

Redkey, Ind.

GEO. W. WILLIAMS, Sec.